University of Alberta

The Utilization of Traditional Knowledge, Land Use and Occupancy Studies: A Case Study from Western Alberta, Canada

by

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Dedication

To the community of the Aseniwuche Winewak Nation

in appreciation of your knowledge and support

ABSTRACT

Now that aboriginal traditional rights and knowledge have been recognized in court cases, Aboriginal communities are trying to find the best way to utilize their knowledge in a way that will benefit all concerned. The Aseniwuche Winewak Nation of Canada conducted a Traditional Land Use and Occupancy Study then applied their information in nineteen ways. They also identified future goals regarding the utilization of their information and participation in decision making processes.

The literature reveals some examples of how to document and utilize traditional knowledge and identifies some problems and benefits related to these studies. Key elements have also been identified for the successful utilization of traditional knowledge and land use with other systems of knowledge. A strategy has been proposed whereby Aboriginal Peoples, governments and organizations can develop a system of land use planning and management, which acknowledges aboriginal rights and values and includes participation in decision making processes.

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1.0 INTRODUCTION

In Alberta, European occupation, primarily from Britain, began with the fur trade in the 18th century. The rich furs of throughout the province drew many traders and later created intense rivalry between the Hudson's Bay Company and other enterprises such as, notably, the North West Company, resulting in the establishment of over 60 trading posts throughout Alberta (Helgason, 1987). Then the missionaries began to arrive in these regions in the 1850s and 60s. They were determined to convince the Natives to change their beliefs and lifestyles. They wanted them to settle down onto fixed plots of land and become farmers instead of hunters. The government supported these initiatives as they wanted to establish authority and to utilize the resources on their traditional lands.

During this time in southern Alberta the whiskey traders had arrived, mostly from the United States, and at a point when there was a great demand for buffalo robes from the East. Whiskey was used to trade with the Natives for buffalo robes, weakening their ability to trade to their own advantage. But later, in 1874, the North West Mounted Police arrived to drive away the whiskey traders. With the presence of the Police, cattle ranchers and settlers began to establish themselves throughout Alberta. In 1883, the Canadian Pacific Railway was completed as far as Calgary and the line to Edmonton was completed in 1891. By this time Treaties 6 and 7 had been accepted by most of the Aboriginal Peoples in central and southern Alberta, and Indian reserves had been established forcing them to live on one area of land. Waves of immigrants began to arrive to farm or ranch the lands where they had lived for thousands of years. In 1899, Treaty 8 was signed in northern Alberta. During this one hundred year period, Aboriginal People had gone from an independent lifestyle to one of forced dependence

on non-native foods, education, housing and occupations. This was more prevalent in the south than the north, as the railway was not built in the north until later. However, the influence of the missionaries, residential schools, and other types of resource developments began to open the north up, disrupting Aboriginal lifestyles, hunting and fishing and creating social and economic problems.

In 1930, the Government of Canada transferred the responsibility of managing most federal Crown land (according to Alberta but contested by First Nations) and First Nation Treaty Rights Off-Reserve, to the Government of Alberta through the Natural Resource Transfer Agreement. Aboriginal People still had the right to hunt, trap and fish throughout their treaty area, except for the purposes of conservation or development (Ross, 2003). Other Aboriginal Peoples (Non-Status and Metis) could hunt, fish and gather if they lived a subsistence lifestyle or for subsistence purposes. They could also hunt on or near a Metis Settlement, although, these regulations seem to differ from province to province and community to community (Metis Nation of Alberta, 2005).

Over time, in addition to farming, forestry, mining and oil and gas developments began to occur throughout Alberta. Meanwhile, resource development regulations and the lack of integrated resource plans or First Nation involvement in government plans, kept First Nations from participating in the management of natural resources. In addition, the provincial government increasingly devolved their management responsibilities to corporations, even those responsibilities related to treaty rights and traditional use by Aboriginal Peoples.

Frustrated by a loss of their rights First Nations and other Aboriginal People began to take their issues to court. Key court cases across Canada such as *Sparrow* reaffirmed

aboriginal rights to fish, hunt, trap and gather, and to be consulted regarding the impact of those rights (Notzke, 1994). Then, recently in British Columbia, the *Delgamuukw* and *Haida* Court Cases resulted in the international, federal and provincial recognition of aboriginal land-related knowledge and rights and a duty to consult (Brubacher and McGregor, 1998 and West Coast Environmental Law, 2005). Consequently, provincial governments across Canada have taken an interest in the issues of "traditional use" and consultation with Aboriginal People on Crown land, as well as the utilization of traditional knowledge.

One way provincial governments and industry are consulting with Aboriginal People is the protection or mitigation of traditional land use sites before planning and developing natural resources. This approach is part of a greater attempt by government and industry to consult with Aboriginal Peoples and to accommodate their interests when establishing resource management activities, programs and processes. However, this approach still supports provincial jurisdiction over natural resources and does not adopt the concept of joint or co-management. Instead, governments promote cooperative or integrated management, which creates a form of partnership that usually facilitates the development of natural resources, while providing for economic development opportunities for aboriginal communities, but within the ongoing methods and perspectives of the dominant culture.

Such attempts have further been frustrated by the difficulty of working with two different world views. There are many reasons for this. Some are related to policies of government, communities and industry, while others are related to the process of resource management, as well as the understanding and will of the parties involved. If the two

groups are to find a common ground to work together regarding aboriginal rights, knowledge and land use with scientific knowledge systems, it will require the parties to adopt a paradigm shift or an ability to understand the points of views of the other parties, something that some organizations - especially within the dominant culture - may not be ready to make. Stevenson (1999) suggests that in theory, the use and application of traditional knowledge (TK) is possible in the planning and management of natural resources, as well as in other areas such as science and culture. However, examples of these types of applications have been limited by social and cultural barriers and perspectives.

The purpose of this study is to identify and analyze examples of how traditional knowledge and land use studies have been and could be used with other land use activities and management systems by aboriginal communities and other organizations in Canada. It also documents the utilization and applications of the Aseniwuche Winewak Nation (AWN) from Western Alberta, who completed a traditional knowledge and land use study and began to utilize their documented knowledge and project experiences outside and inside their community.

This community of approximately 350 people live in six settlements near Grande Cache Alberta. They originally lived in an area of the Athabasca Valley that is now part of Jasper National Park. Many of their ancestors came from Eastern Canada during the fur trade. As changes occurred on the land, they have augmented their traditional lifestyles of hunting, trapping and fishing with some farming, ranching and guiding activities. Now with a higher intensity of resource development activities and associated increases in infrastructure and populations, they are being forced to look for new types of

employment, while trying to protect their culture and lifestyle. It was for these and other reasons, they initiated a traditional knowledge, land use and occupancy study.

It is hoped that their examples and others will serve as a preliminary guide for Aboriginal People, government and industry to explore the possibilities of applying and utilizing traditional knowledge and land use together with the Western society's resource management and development systems, in a way that does not separate the knowledge from its owners. But rather than incorporate traditional knowledge and land use into existing systems and process, I am proposing that the combination of these two knowledge systems can create a new and better system of sustainable resource development and management. Such a system would enable aboriginal communities to be equal partners, contributors and decision makers, to a unique process that could benefit everyone - government, industry, the public, and the land itself. But what is needed to accomplish this goal is a method or framework in which all groups could work together. As a result, the following thesis proposes a possible strategy and method to achieve this new system. This strategy begins with a review of traditional knowledge and land use, definitions (Section 3.1), comparisons (Section 3.2), similarities (Section 3.3), current Natural Resource development and management (Section 3.4) and some of the studies that have occurred in Canada (Section 3.5), followed by the utilization and applications by the AWN (Section 3.6). This section is followed by a discussion of traditional land use and occupancy studies as a foundation for utilization and applications (Section 3.7). In the discussion and a proposed method of true integration, the barriers to the utilization and application of traditional knowledge and land use are examined (Section 4.1), followed by proposed critical elements deemed necessary for success of

developing a new resource management system (Section 4.2). And finally the thesis proposes a strategy or stages that could assisted with the establishment of a local or community management process, concluded to be the best way to achieve a new management system (Section 4.3).

2.0 METHODS

2.1 Literature Review

The literature was researched and reviewed to compile relevant information for this study. Information and reports were also obtained from organizations including the Aseniwuche Winewak Nation of Canada (AWN) and the Government of Alberta. Those reports containing examples of the documentation, discussion and subsequent utilization and applications of traditional knowledge and land use studies in Canada were a priority for this research. The literature were searched for commonalities and for various approaches and levels of utilization. The information was then analyzed to determine key examples, elements, patterns and themes. Further analysis of this information revealed differences between traditional and scientific knowledge, and barriers to utilization of the two systems together. To facilitate the successful utilization of these two knowledge systems, the processes and characteristics of successful elements of various applications were also investigated.

2.2 Research

In addition to the literature, the utilization of traditional knowledge and land use by the Aseniwuche Winewak Nation of Canada was documented. The AWN had identified a

number of land use issues that needed to be addressed. They had decided that a traditional knowledge, land use and occupancy study was the best process and format to provide them with the necessary information to address these issues. They then wanted to "integrate" the resulting information into various projects and programs for the benefit of the community.

I assisted the community with their study, by coordinating their traditional land use study using a participatory action research (PAR) methodology. The PAR approach has been utilized by anthropologists in other studies to assist local communities with research to facilitate social, economic and environmental changes (Robinson and Sawicki, 1996). Participatory research involves the full participation of the community during the entire research process. The researcher is also a committed participant and learner in the process.

I coordinated their study through a three year process of research (1999 to 2002) with Elders and the Administration. The AWN community administration and study coordinator reviewed, approved and directed research methods for the study. Elders, community specialists or knowledge holders were interviewed. Following the interviews and mapping sessions, traditional land use sites were field checked and stored in a Geographical Information System (GIS). The GIS was set up at the community's office, for security purposes, rather than at an outside facility. AWN administrators and other members were trained to use the system. Following the project, at the direction of the community, I wrote a draft traditional knowledge, land use and occupancy report.

During this process I provided research information and assistance with some of their applications of traditional knowledge and land use. The community utilized this

information, along with other information they had collected to assist with their own goals of "integration", including their referral process and consultation Manual (Aseniwuche Winewak Nation, 2002).

I therefore began to gather information for this thesis during their traditional land use study, while in a consultative role, then followed-up this role with a more informal relationship, to document the utilization and applications of their knowledge. The community's experiences and results of utilizing their traditional knowledge and land use sites within and outside the community were recorded during semi-structured interviews, meetings and discussions with members of the administration and their partners. The interviews occurred in person or over the telephone. Some of these meetings were scheduled, while others occurred when possible, at gatherings or on a trail ride over a three day 3 period. Approximately 10 people were questioned during the above sessions. Some of these were taped, while others only notes were taken. They varied in length from 10 minutes to 2 hours. The questions would vary according to the person being interviewed and their relation to the AWN (i.e. partners or members). The administration of the AWN provided most of the information for this thesis. In addition, the community provided written information, in the form of reports, papers and newsletters, regarding their related activities.

3.0 RESULTS

3.1 What are Traditional Knowledge and Land Use?

The literature contains a number of definitions of traditional knowledge (TK) or traditional ecological knowledge (TEK), most of which are similar, although others may

have a particular perspective, depending on their experiences with TK. Although these terms have been used interchangeably, for the purposes of this thesis I will be using the term "traditional knowledge" as it appears to encompass a wider spectrum of knowledge, where as TEK appears to be more related to ecological or environmental knowledge. In addition, I have included the term land use and occupancy, to further clarify some of the applications and issues that will be discussed. The following is a brief review of some of these definitions.

Bombay (1996) defines aboriginal forest-based knowledge as a "body of information about the interconnected elements of the natural environment which traditional Indigenous People have been taught, from generation to generation, to respect and give thanks for." Other definitions describe it as the knowledge that Aboriginal and First Nations peoples possess about the natural world and their relationship with it (Stevenson, 1999). This knowledge is transmitted as memories, activities, stories, songs, folklore, proverbs, dances, myth, cultural values, beliefs, rituals, community laws, language, practices, equipment, materials, hunting, fishing, gathering and agricultural practices (Grenier, 1998). Brubacher and McGregor (1998) summarized the elements of TK into the following categories:

- The world view level (cosmologies and creation);
- Codes of behavior (ethics) or "natural laws" that govern relationships with the land;
- Practices associated with resource use and management that emerged out of expressing a relationship with Creation;
- A body of factual knowledge.

When discussing traditional knowledge with Aboriginal People, they will usually talk about their ancestors and how they have lived and survived on the land for thousands of years, and their accumulated environmental, cultural and spiritual knowledge. They also talk about their relationships to all aspects of the land through stories. This information has been orally passed down to younger generations or through example, as traditional knowledge is not only seen as a source of knowledge, but a way of life passed on from one generation to the next (Garvin et al, 2001). That is why traditional knowledge is inseparable from the people who hold it and the relationships they have developed with the cosmos, places, plants, animals and water.

Often the word - traditional knowledge, is not separated from the locations of use or in other cases the focus is just on the land use sites and occupancy areas. But as mentioned, I would like to further add traditional land use and occupancy to the definition - as where people learn and practice their traditional knowledge. This can include sites or areas of traditional land use. All of the area of land used by a community or clan is often referred to as a traditional territory or traditional area. A group claims this area as part of their identity, including their Aboriginal right to hunt, trap and gather. Often consultation is focused on the location of impacts, without the traditional knowledge of how they are impacted. Aboriginal Peoples have names for sites and stories or information about these places to establish their relationship to their territory. Sites within this area may include graves, trails, gathering areas, ceremonial sites, and fishing, hunting and trapping areas. Some of these sites are sacred or personal and are meant to be treated with respect and particular protocols. Usually aboriginal communities did not wish to disclose the location of traditional sites in order to protect

them from people who might destroy or remove items from them. These sacred sites are critical to the well-being of individuals and as well to the identity of the community.

A Western view of the land does not usually include a spiritual or cultural value, and increasing resource development activities have impacted or unknowingly destroyed many of these cultural sites. It is the impact of these developments on aboriginal land use areas, treaty rights and on the ability of Aboriginal People to practice their culture that has brought the issues of traditional knowledge and land use to the forefront of discussions today.

To assist with addressing these issues and to document the knowledge within an aboriginal community, anthropologists, communities, industries and governments have attempted to document traditional knowledge and/or land use and occupancy (TKLU) using a variety of approaches, depending on the purpose. These types of studies are usually called "traditional land use and occupancy studies." They are often related to land claims or more recently to consultation by government and industry and the impact of other land use activities on traditional sites and rights. Aboriginal People have indicated that the amount of information identified in TKLU studies is only a small portion possessed or identified by a community. Factors such as time, people, funding and type of knowledge given by informants, size of the area and purpose of study can affect the amount of knowledge collected. For example, sacred knowledge is often not discussed or recorded on paper. Other issues related to documentation of traditional knowledge, include the use of this information. In some cases, the information was used without the consent of the people who gave it, as it was often stored away from the community. Another issue is of how the information is used or incorporated into other

agendas, studies and management processes. In the past, some traditional knowledge reports have become supplements to scientific reports or studies such as an Environmental Impact Assessment, and have not been fully accepted nor given equal credit in its value. For example traditional knowledge related to the environment is usually relegated to the cultural section of a study, rather than to the section where it may be directly relevant. This further illustrates the importance of having Aboriginal/First Nation peoples bring their own information "to the table" in order to ensure that this information is presented, protected and interpreted correctly. It also ensures that the holders of this knowledge are not kept out of the process, which can happen if the knowledge is simply collected and stored by outsiders. Involvement in a process enables communities to interpret their own values, issues, concerns and needs. And maintaining control of their own traditional information is seen as a cornerstone in developing a link between traditional knowledge and science (Wavey, 1993).

3.2 A Comparison of Aboriginal and Western Scientific Knowledge Systems

A comparison of aboriginal and scientific knowledge and systems has been conducted by a number of different individuals or groups. Stevenson (2005) indicated that traditional knowledge evolved to inform ways and philosophies of life very different from those in which scientific knowledge and resource management emerged. Further, Aboriginal Peoples, and most indigenous people worldwide, traditionally did not manage resources, but managed their relationships with their resources. For this reason Stevenson believes that the two systems should not be merged, but can be used to complement one another.

Other attempts to understand and evaluate traditional knowledge and Western or scientific knowledge have compared the characteristics of these systems. For example, Ferguson and Dunnigan (1998) constructed a chart comparing aboriginal knowledge with Western scientific knowledge (Table 1). Although this type of analysis does give insight into the two systems, these comparisons can create problems for situations where there is a desire to use both systems for one project or to use the two systems to develop a new system where both types of knowledge are equally respected. For one thing, the comparisons often focus on differences rather than similarities, thereby polarizing the two systems of knowledge.

This polarization can fix hegemonic categories in the public's mind (Nader, 1996), thus creating a predisposition for parties to give up before even attempting to work together. Comparisons also set boundaries, that is, they include some things and exclude others, and thus can create hierarchies rating one form of knowledge above another (Nader, 1996). In addition, these comparisons identify the differences of the chosen characteristics, but they do nothing to identify the goals and similarities of the two groups. By identifying the similarities of the two systems, the two systems can find common ground and goals. Also, it is apparent that the two knowledge systems have the same elements, such as spirituality, even though one has a tendency to compartmentalize activities and the other is more holistic, there can still be found examples of compartmentalization or holistic approaches within each group.

3.3 Similarities of the Two Knowledge Systems

3.3.1 The Land Base is the Same

Scientists, industry and Aboriginal/First Nation Peoples usually use the same land. In such cases, they are all observing and interacting on the same area and its ecosystems. Therefore, they are in a position to discuss components of the same ecosystem, even though they may have different relationships and values associated with them. They also utilize these resources for a variety of purposes. For example, trees are perceived by a

Aboriginal Knowledge	**Western Scientific Knowledge**
General Characteristics	
Spiritual	Mechanistic
Holistic	Reductionist analysis
Interpretive	Model or hypothesis based
Oral and visual	Written
Learning Context	
Teaching through storytelling	Didactic teaching
Experimental or hands-on learning	Learning by formal education
Empirical observation, accumulation of facts by trial and error	Experimentation and systematic accumulation of facts
Data generated by resource users	Specialized researchers
Lengthy acquisition	Rapid acquisition
Type of Knowledge Produced	
Longitudinal data	Synchronic data
Qualitative	Quantitative
Powerful predictions in local areas	Powerful predictability in general natural principles
Cyclical modes	Linear modes

Table 1: A Comparison of Aboriginal and Western Scientific Knowledge Systems (Ferguson & Dunnigan, 1998)

forestry company as having a certain volume, and when cut will be processed for a particular economic use, such as paper or lumber. To Aboriginal/First Nations People, a tree may be viewed as having a spirit and may be sacred. It may also be used to build a house, heat a home, or generate revenue, similar to a forestry company. However, Aboriginal/First Nations People may extract the trees differently or use different tree species.

3.3.2 Both Systems have Developed Management Practices

Across Canada, there have been a number of studies documenting the management practices of Aboriginal/First Nation Peoples. These include the use of fire to manage the vegetation (Gottesfeld, 1994; Lewis, 1982), hunting and fishing practices (Corsiglia and Snively, 1997), plant cultivation (Turner, 1997), and watershed management (Gitxsan First Nation, 2000). In Alberta, the use of fire by Aboriginal Peoples was well known and documented by Lewis (1982). It was used to extend particular habitats for all types of wildlife and increase the production of certain plants, such as berries. Aboriginal Peoples had a recognized knowledge of when, how and what to burn, as well as the habitat and nutritional requirements of wildlife and plant species.

Company and government land managers also use a variety of management practices, depending on the type of land use activity being managed. Management is even more complex when companies are practicing sustainable, ecosystem or adaptive management. They must consider the information and needs of other land users in their planning and management processes. The aboriginal and non-aboriginal systems may or may not have the same goals or even the same processes, but generally they both have the

intent of maintaining the biodiversity of an ecosystem or a particular species' population. These common goals need to be explored more fully.

3.3.3 Both Systems Have or Have Utilized Land Classification Systems

The scientific approach is known for its hierarchical systems used to classify the elements within each particular science area. In fact the various aspects of science themselves are also classified, such as geology, agriculture, forestry and others. Classifications are seen as an essential part of inductive schemes of the scientific method (Dolby, 1979). For example, the Alberta government has a system called the Alberta Vegetation Inventory for classifying trees. This system considers species, age, height classes and volumes. Forestry companies utilize a similar system. However, when planning ecosystem use, the land is looked at more holistically, employing other systems that classify the vegetation, soil, climate, and landform, such as Ecological Land Classification. These types of classifications are designed to be hierarchical, with broad units at the top and smaller units at the bottom. Wildlife information is often superimposed on this information.

Aboriginal/First Nation Peoples have developed their own classifications of the land and other elements, and have thus used an approach that has some parallels to science. For example, Basso (1984) outlined Western Apache place name hierarchies for land in East-central Arizona. This system classified multi-level structures, the largest to the smallest, which is not unlike a physiographic land classification. Also, the Navaho (related to the Dené) classified their natural world based not only on exterior features, but also on other characteristics such as place of dwelling and their elements (Layton, 1997). The Gitxsan First Nation has traditionally used watershed boundaries and an ecosystem

management approach, which considers all uses in the forest (Gitxsan First Nation, 2000). These views are not entirely different from a scientific approach that classifies trees and plants by species, volume and community or a holistic or ecosystem approach used in Ecological Land Classification. Each of these systems could be explored, utilized or combined with existing Western systems to form a new system of management, depending on the needs and goals of the groups involved in a given situation.

3.3.4 The Two Systems Can Complement Each Other

There have been many examples where traditional knowledge has contributed or been incorporated and guided into resource management, education, planning and environmental impact assessment projects. For example, in Alberta TKLU has contributed baseline data to an environmental impact assessment for a pulp mill proposal (Northern River Basin Study, 1995). In most cases, TKLU is being inserted into the dominant system, providing Aboriginals and First Nations with limited access to lands, resources and management responsibilities.

Even though communities have begun to accept some of the concepts and philosophy of current resource management practices, there are few examples of communities accepting or having the ability to utilize natural resource data to improve their own traditional management systems. However, aboriginal communities are using Western technologies, such as Geographic Information Systems (GIS), to document and manage traditional knowledge and land use information (Wavey, 1993). Using this type of system also makes it possible for them to access their community's information more easily when involved with resource management processes or activities. Although, others

see aboriginal community involvement with existing land use processes as disempowering communities, due to the further "adoption" of non-aboriginal language and concepts (Nadasdy, 2003).

3.4 Current Natural Resource Development and Management

The current concepts of resource development and management by governments and industry are rooted in the traditions of Western science and industrialism. These cultural perceptions are derived from the Western agricultural traditional and Judeo-Christian beliefs that the human species stands above and apart from nature (Stevenson, 1998). This is further reinforced by theories of evolution, as human beings are seen as being the most evolved. Brody (2000) further indicates that this agricultural tradition is willing to defy aboriginal resentments, by taking part in colonial wars of conquest, in an effort to remake the wilderness into a patchwork of pasture and fields. And any hardship endured in accomplishing this goal is seen a religious achievement and the establishment of civilization. The hunter-gatherers are perceived as a challenge to their goals, as they do not make any intensive efforts to reshape their environment, but rely on knowing how to find, use and sustain that which is already there.

Consequently, by Western society's definition, resources are things to be used and derive their value from that use. The value of a resource may increase further, as it is processed and produced into items valued by consumers. In addition, Appardurai (1996) suggests that local production centres are a mask for transnational and global forces that actually drive the production process.

The management and development of resources is usually a dynamic and complex decision-making process which ideally involves inventory, assessment, goal formulation,

policies, programs, legislation, administration and managerial strategies (Notzke, 1994). It also has spatial and temporal dimensions. Further, these elements and processes can be affected by political, economic, social, biophysical, legal and technological pressures and agendas. In Alberta, the main natural resource extraction activities include oil and gas, mining and forestry. The most extensive of these three is oil and gas, which can be found throughout the province. Forestry and mining are more intensive, although forestry usually occurs over larger areas. It is important to recognize that forestry is one of the most accessible activities wherein aboriginal communities can hope to claim management responsibilities.

In the past, the Crown assumed all responsibilities for land management and First Nation/Aboriginal rights off-reserve. In Alberta, the provincial government sometimes uses a system called "Integrated Resource Management" (IRM) at both regional and local levels, with a public consultation process that could and has involved Aboriginal People. Aboriginal participation varied depending on the issues, concerns and area. However, that participation was consultative in nature and did not involve the potential contributions to sustainable forest management.

As mentioned previously, over the last ten years the Alberta government has devolved many of these responsibilities to the private sector. In particular, the forestry sector is now effectively responsible for timber harvesting and processing, and often the planning and management of the forest for sustained yield. Provincial government management practices leave it to the forest companies to consider the interests, issues and concerns of aboriginal communities. For example, the Foothills Model Forest, based at Hinton, established an Aboriginal Steering Committee and is currently working with

these aboriginal communities to assist with the collection of their traditional use sites and information within and outside the Model Forest area. Members of the Steering Committee also sit on the Board of Directors (Foothills Model Forest, 2005). Obviously, some companies are still at a level of consultation, while others have signed agreements with aboriginal communities and are in the process of identifying traditional sites for management purposes (Bombay, 1996). And some companies are attempting to utilize traditional knowledge within their resource management activities.

The devolving of provincial responsibilities is now changing owing to the previously noted British Columbia (B.C.) court cases. In *Delgamuukw*, the Supreme Court of Canada supported the validity and role of traditional knowledge. Furthermore, it recognized that aboriginal perspectives on land and laws governing land use are relevant in establishing occupation for the purposes of proving aboriginal title in cases where title has never been extinguished. Also, the court found that Aboriginal rights are more than simply to use the land for specific activities such as hunting or fishing, but rather extends a right to the land itself. The court established that aboriginal oral history and traditional knowledge can be used in court to assist in defining aboriginal rights, including title to land (Prentice, 1999). It indicated that for government and industry, there is a duty to consult First Nations (and apparently, other Aboriginal Peoples with aboriginal rights, although this has not been tested) regarding infringement or aboriginal title, which may or may not require full consent of First Nations being impacted by resource developments.

Another more recent court case from British Columbia further entrenched the duty and "honour of the Crown" to not off-load the "duty to consult" to corporations. In

February 2002, the B.C. Court of Appeal delivered a landmark decision between the Haida Nation and the Minister of Forests and Weyerhaeuser Canada Ltd., regarding the duty of the Crown and third parties to consult with Aboriginal People who have asserted, but not proved aboriginal rights or title (Penikett, 2003). The B.C. Court of Appeal, found that both the B.C. government and Weyerhaeuser Canada Ltd. had a legal duty to consult and find a "workable accommodation" with the Haida. In this case the Haida Nation sought to invalidate the Minister of Forests' decisions to replace Tree Farm Licenses to Weyerhaeuser Company Ltd. on the Queen Charlotte Islands.

The province and Weyerhaeuser chose to appeal the case to the Supreme Court of Canada and the Haida responded by filing a suit claiming aboriginal title to the Queen Charlotte Islands. The court denied the province but heard the Weyerhaeuser appeal. On November 14, 2004, the Supreme Court of Canada upheld the former case, and reinforced the need of the Crown to consult with Aboriginal Peoples, especially where there are serious impacts on aboriginal title and rights and pending the resolution of a land claim. It further indicated that there is no independent legal duty on the third party tenure holders to consult, and the Crown cannot "delegate its honour" to resource companies, by turning over land and resource decisions to them. However, companies must take the Crown's duties very seriously or they may find themselves without the "right to operate" (West Coast Environmental Law, 2005). The Haida Nation is now actively pursuing arrangements that would see them jointly manage the Charlottes with the two other levels of government in land use planning processes. A growing number of B.C. First Nations are also becoming interested in co-jurisdiction alternatives to land management (Penikett, 2003).

In addition to the above court cases, there is currently a case before the Supreme Court of Canada between by the Mikisew Cree First Nation and the former Minister of Canadian Heritage, Sheila Copps. The case examines the justification of infringement of treaty rights, and whether the Crown can ignore or supersede existing constitutionally protected treaty rights of First Nation by simply asserting a "taking up" of land for the purposes of building a winter road through their traditional territory. The First Nation was frustrated with the manner in which Parks Canada was handling the notification and consultation process, and their concerns (Supreme Court of Canada, 2005). This decision, if in favour of the First Nation could be significant in two ways, the first being the need for adequate consultation regarding the impingement of treaty rights, and secondly, that adequate consultation must occur even when the government is "taking up" the land for "settlement, mining, lumbering, trading or other purposes".

About the same time as these court cases, the federal and provincial governments and the forest industry embarked on a policy of ecosystem and sustainable management (National Forest Strategy Coalition, 2003). This approach will more clearly identify the needs, issues and values of all land users, especially aboriginal knowledge and land use sites. This type of system also considers the environment not only in terms of one value or commodity, but as consisting of a multiple of values, including those without current economic or monetary status. This means that natural resources must be managed in an ecosystem or holistic manner, similar to an aboriginal approach to management. This move has been supported by the Assembly of First Nations for a number of years, who presented an agenda for action on First Nation forestry, to the federal government in 1998. They identified a need for the federal government to develop a mandate to work

cooperatively with provincial and territorial governments to supplement and support local First Nation sustainable land management initiatives (Assembly of First Nations, 1998).

3.5 The Utilization of Traditional Knowledge and Land Use in Canada

In Canada, traditional knowledge has been documented and utilized at different levels of jurisdiction and for a variety of applications. Some of these include acts and legal cases, policies, principles and guidelines, environmental impact assessments and consultation processes, agreements, planning and management activities, programs, and research (Appendix 1). Many of these applications have resulted in significant changes and others are at the level of data collection, including land use studies and specific harvest studies (Bombay, 1996). Although these inventories usually do not use Aboriginal/First Nation processes, values and relationships, the collection of traditional data and the diversity of its subsequent applications are increasing, owing to the assertion of Aboriginal rights and the ruling on the *Delgamuukw* and *Haida* cases discussed above. These studies are one way that Aboriginal Peoples can identify and affirm their traditional territories or the areas in which they have an interest and wish to be consulted, as well as determine the extent of impingement on their rights or benefit to them. The documentation of some of their knowledge and sites also provides opportunities to get involved in the planning and management of natural resources. Although Nadasdy (1999) cautions that we must not ignore the political dimensions of integration, nor assume that the integration of traditional knowledge with science will automatically improve resource management or aboriginal empowerment. It appears that each application has its benefits and problems, and must be determined from each assessment. Some of these will be discussed later.

First, review some examples of the utilization or applications of traditional knowledge at various levels of jurisdiction.

3.5.1 Example 1 – The Little Red River/Tallcree First Nations

Little Red River/Tallcree First Nations (LRR/TC) live in north-central Alberta. Since the 1950s there has been an expansion of agriculture, forestry and oil and gas activities in their traditional territory. With this expansion, coupled with an increase in their population, the LRR/TC First Nations saw that the remaining forested lands would become incapable of supporting their hunting and trapping lifestyle. The LRR/TC First Nations began an effort to ensure that their aboriginal rights to lands and resources were protected. In 1995 they signed a Cooperative Management Agreement with the Province to establish an institutional framework for cooperative forest management of a Special Management Area (SMA) of 30,000 sq. km. Later a management board was set up to manage the SMA on the basis of sustainability, adaptive management and the meaningful consideration of local knowledge, values, and needs in resource management. They also negotiated a commercial timber permit for the SMA to address unemployment. In this situation, the leaders of the Band were faced with the question of how to incorporate local concerns and values into forestry management without sacrificing the financial goals and business requirement of industrial forest management or the annual allowable cut (Natcher and Hickey, 2000)

To address this question and to meet their goals, the LRR/TC First Nations developed another partnership with the Sustainable Forest Management Network (SFMN). They initiated a number of studies including a Caribou Mountain Critical

Wildlife/Habitat study and a traditional ecological knowledge study (Sewepagaham, J. and J. Webb, 2002). They also established a set of specific local criteria and indicators for sustainable forest management from the LRR/TC First Nations culture and land use needs. This research is ongoing, but preliminary results indicate that the use of criteria and performance indicators can provide an accurate assessment of forest management as it affects local land use concerns (Natcher and Hickey, 2002).

3.5.2 Example 2 – The Algonquins of Barriere Lake and their Trilateral Agreement with the Province of Quebec and the Government of Canada

In this Agreement, a three-way partnership was formed to address issues related to aggressive resource exploitation of the Algonquin traditional use area. The Agreement acknowledged a need for an integrated resource management plan that takes into account the traditional knowledge and subsistence economy of the community. It outlined a set of principles. The Agreement adopted three programs:

- Indigenous Knowledge Program to document and incorporate TKLU into the integrated resource plan;
- Sustainable Development of Natural Resources – to develop a sustainable adaptive management strategy for renewable resources of the Agreement territory;
- Economic/Social Development Program – to profile and analyze regional socio-economic activities and legal frameworks to facilitate the selection of management alternatives (Bombay, 1996).

3.5.3 Example 3 – Manitoba Keewatinowl Okimakanak First Nations

In Manitoba, logging roads and activities were instrumental in aboriginal participation in an Environmental Assessment process. The Environmental Assessment Review Process

Terms of Reference required a detailed assessment of impacts of logging and roads on aboriginal land use (Sub-committee of Intergovernmental Working Group on the Mineral Industry, 1997). The Manitoba Keewatinowl Okimakanak (MKO) First Nations, through their Natural Resources Secretariat, negotiated an agreement-in-principle to have MKO carry out the actual land use mapping related to the environmental assessment process using GIS. Through the control of this process the proprietary nature of much of the resource and land use information of individuals was protected by MKO, while optimizing and acknowledging the value of this information. The database has provided information about the ecosystems, wildlife, fisheries and forests to academics, scientific researchers and others. MKO also made certain details of the database public by publishing maps of prime hunting and fishing sites, grave sites and former community locations.

This comprehensive GIS database can incorporate existing and future land use data, allowing overlay and comparison of resource inventories and economic activities, as well as predict alternative patterns of development. The First Nations recognized that their influence and involvement in natural resource management and decision making is tied directly to the social, cultural and economic future of their people. They know, for example, that Aboriginal Peoples and their knowledge of the land can be seen as an early warning system for environmental change.

3.5.4 Example 4 - BHP Diamond Mine in the Northwest Territories

The federal environmental assessment panel directed BHP Diamond Inc. in the NWT to give TK equal consideration with scientific research in a review of a diamond mine it was

building northeast of Yellowknife (Laghi, 1997). However, there were no guidelines on how to incorporate that knowledge. The mining company itself had to determine how to incorporate traditional knowledge into their baseline information. The company met with the Aboriginal People to determine how to proceed with the project in a manner compatible with traditional values (Sub-committee of Intergovernmental Working Group on the Mineral Industry, 1997). BHP initiated and financed a Phase I Traditional Knowledge study to document the concerns of the communities about the project. Later, in Phase II, they identified categories of traditional knowledge that could be incorporated into mine development plans and environmental monitoring programs. However, no proprietary information could be disclosed to outside parties without prior approval. Each group would determine the extent of its participation and inclusion, as well as its own expertise and knowledge. Furthermore, the project would be designed jointly in consultation with Aboriginal Peoples and organizations. As with any new approach to a project, some difficulties became evident, especially giving TK full consideration, as it can be quite site-specific and local. They concluded that more direction was required from the federal government on where and how to incorporate TK into environmental assessments.

3.5.5 Example 5 – The Gitxsan First Nation

The *Delgamuukw* court case established that oral history was a valid form of knowledge that could be used to establish land claims. Since that time, the Gitxsan have attempted to set up a mutually acceptable consultation process with the five Forest Districts in their traditional territory. Also, they are responsible for collecting and managing their own

traditional knowledge. The Gitxsan First Nation (2000) is now proposing its own cooperative community model of sustainable management, which integrates the values of all forest users. They are working with stakeholders and non-aboriginal communities to implement this cooperative approach which reflects their community values and approaches to land management. This approach also implies shared authority and recognition of Aboriginal/First Nation title to land, as well as regional self-governance and localized control of resource planning and management. This type of approach is in line with other ecosystem approaches, such as Canada's Model Forests. Their ecosystem approach to land management could also make the Gitxsan's forestry operations a strong candidate for certification under the Forest Stewardship Council's standards (Gitxsan First Nation, 2000), providing marketing exposure and a competitive advantage for local value-added manufacturing.

3.5.6 Example 6 – Biodiversity Convention

At the national level, Canada has signed or endorsed a number of reports and articles related to the increased role of Indigenous People and the value of traditional knowledge. An example of this is Canada's ratification of the Convention on Biological Diversity, supporting increased roles for holders of traditional knowledge (Brubacher and McGregor, 1998). The Canadian Institute for Environmental Law and Policy interpreted the Biodiversity Convention Articles 8(j) and 10(c) as requiring federal and provincial governments in Canada to ensure the following (Ferguson and Dunnigan, 1998):

- First Nations have continuing use of the resources which they have traditionally used for sustenance;

- Non-Aboriginal People need to respect the fact that traditional knowledge is passed on only in an aboriginal context and it should be shared in a way that is approved of and is of benefit to Aboriginal People;
- Aboriginal People need to be included in impact assessments;
- Aboriginal People need to be supported financially in environmental restoration.

3.5.7 Example 7 -The Beverly-Kaminuriak Caribou Management Board

The Beverly-Kaminuriak Caribou Management Board is located in the Central Arctic. It is responsible for coordinating management of caribou herds in the interest of traditional users and their descendants, who are or may be residents on the range of the caribou (Notzke, 1994). It also recognizes the interest of all Canadians in the sustainability of this resource. The board is composed of Aboriginal and non-Aboriginal Peoples. Aboriginal communities conduct harvest studies with government funds. Their knowledge about caribou health, numbers, migratory patterns and behavior is now integrated with the methods of government biologists. Consensus decision making is employed. The board develops long-term management plans and makes recommendations to governments and traditional caribou users for the conservation and management of the Beverly and Kaminuriak herds and their habitat. The biggest problem facing the board is the apparent unwillingness of public authorities to act on the Boards' advice with regard to habitat protection.

In summary, the above cases appear to indicate a trend from acknowledgment of traditional knowledge and use with a set of principles, through to the integration or use of traditional knowledge and the need to consult with Aboriginal people regarding their rights. This acceptance can be in the form of incorporating traditional knowledge into an

existing system or process, or in some cases it is given full value within a new process. However, it appears that there are no guidelines for how or when this should be accomplished. To date, many of these applications and utilizations of traditional knowledge by and with Aboriginal Peoples have been beneficial and in some cases frustrating for all concerned. But as more court cases identify the need to consult aboriginal communities regarding their rights, there are more communities demanding an equal say in the management of the environment and the activities that affect the impingement of their rights.

3.6 The Utilization of the Aseniwuche Winewak Nation's Traditional Knowledge, Land Use and Occupancy Study

In Alberta, there are some Aboriginal/First Nations communities, government and industries that have been attempting to apply or utilize traditional knowledge and land use information within the current resource management system. One of these groups is the Aseniwuche Winewak Nation of Canada near Grande Cache, which has a long history of coping and adapting to the continuing and increasing effects of natural resource developments within their traditional territory. Their collection and application of traditional knowledge and land use is reviewed in this section. It identifies what they have learned from collecting their knowledge and translating it into Western systems, and how it can be used with other land use activities and management systems and for the benefit of their community.

3.6.1 Background Information

The Aseniwuche Winewak Nation of Canada (AWN) consists of six Aboriginal settlements in the Rocky Mountains 40 km. from Grande Cache, Alberta. "Aseniwuche Winewak" means Rocky Mountain People. Their members are non-status Indians descended from Cree, Beaver, Stony and Iroquois and European fur trappers and traders who lived in this area (Aseniwuche Winewak Nation, 2002). Approximately 350 members live in 6 settlements known as Cooperatives and Enterprises formed in the early 1970's. These cooperatives and Enterprises were established as legal entities to hold title to land granted to the community by the Province of Alberta. They include the Muskeg Seepee Cooperative, Susa Creek Cooperative, Wanyandie Flats Cooperative, Victor Lake Cooperative, Kamisak Enterprise and Joachim Enterprise. The community has seven tracts of land totalling about 1680 ha (4150 ac.). The community as a whole is a distinct and has incorporated the individual Cooperative and Enterprises under the Societies Act. It consists of four presidents of the Cooperatives and two managers of the Enterprises who are chosen by their respective communities. They or designates, serve as council members of the AWN. One of the presidents is appointed to serve as chairman and spokesman of the Nation. The council oversees all activities common to the six settlements. In addition to the settlements and council, the AWN has four committees, an Advisory Elders Council and the Aseniwuche Development Corporation to address their issues.

The history and culture of the AWN is rich and diverse. Their traditional territory was extensive and included parts of British Columbia, as evidenced by the area of interest identified for their traditional land use study (Figure 1). Originally, they lived along the

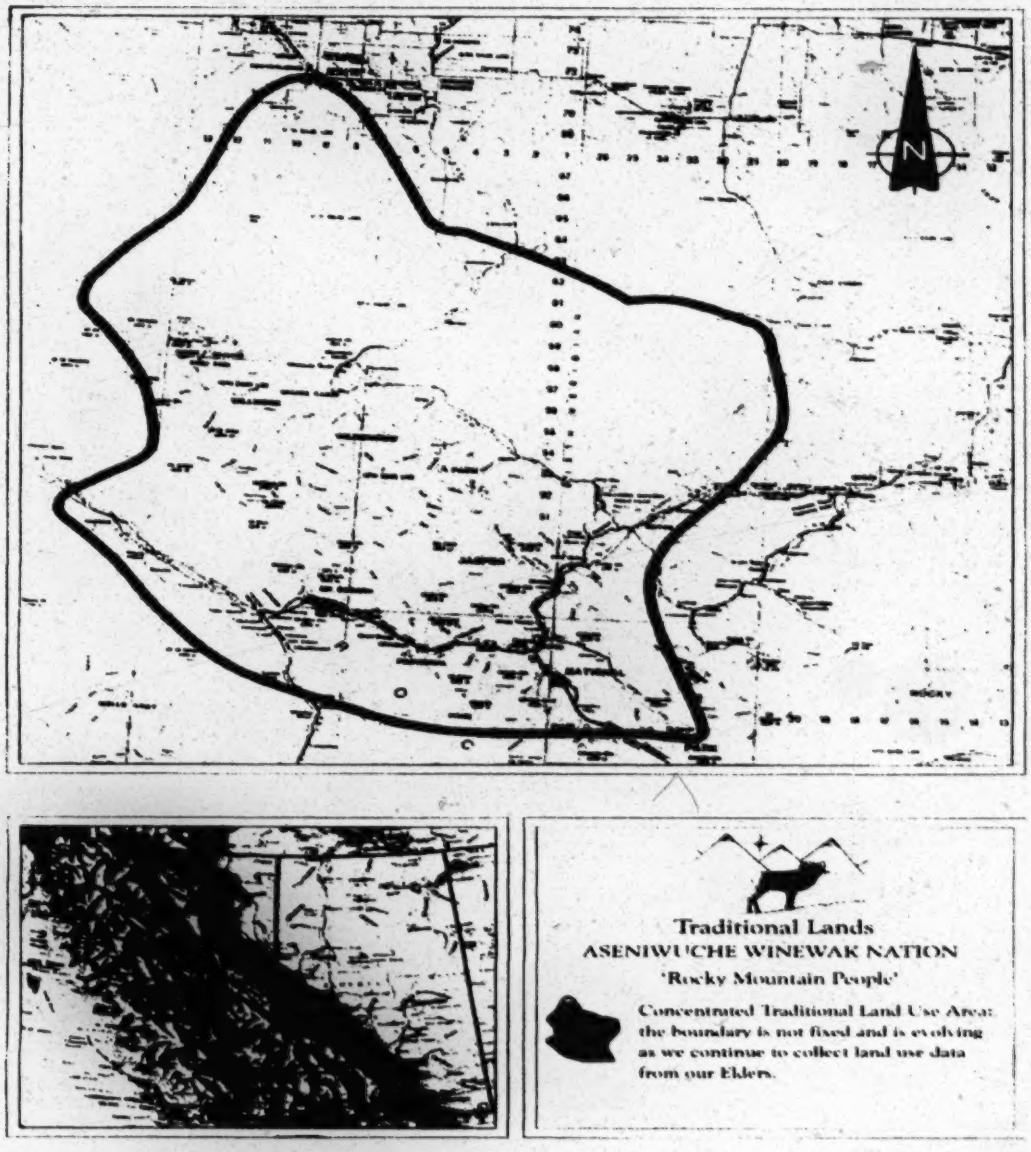
N
Traditional Lands
ASENIWUCHE WINEWAK NATION
'Rocky Mountain People'
Concentrated Traditional Land Use Area: the boundary is not fixed and is evolving as we continue to collect land use data from our Elders.

Figure 1: Concentrated Traditional Land Use Area of the Aseniwuche Winewak Nation (Aseniwuche Winewak Nation)

Athabasca Valley, where the Jasper National Park is now located. In 1909, ancestors of the AWN were evicted from part of their historical homeland, after the creation of Jasper National Park. They then decided to settle in the Grande Cache area, in a different part of their traditional territory, living a traditional lifestyle until the 1960's, when the town of Grande Cache was formed in 1969. From that time on, these people have had to adapt to a number of different types of developments that affected their homes, health, income and lifestyle. These developments included a railway, highway and road, town construction, mining, oil and gas developments, logging, tourism, recreational activities and other natural resource activities. Following these developments, the populations of game animals, furbearers and fish declined. The quality of some of the natural resources including water and air has also declined. With jobs becoming more technological, many of the residents could not keep pace and have been unable to adjust to these changes. As a result, many of them only attain a modest standard of living (Aseniwuche Winewak Nation of Canada, 2005). The AWN sees a need to take ownership of these issues and the solutions (Stanley Environmental, 1998). They want the solutions to be community based and reflective of common community values, attitudes and concerns. In order to achieve this, they recognize that they have to be a primary partner in the design, development, and ongoing management of initiatives that affect their community. Despite many obstacles, the community of the AWN is moving progressively towards their goals, by establishing initiatives to deal with the impact of past events and a constantly changing environment. These initiatives include social and educational programs, the ability to practice their Aboriginal hunting rights, and developing agreements with industry. They have also submitted a land claim. Despite the many

kinds of issues and obstacles facing the community they are determined to find solutions to these problems. Their strong connection to the land appears to be one of the major forces sustaining their resolution. They have hunted, fished prayed, gathered, camped and raised their families on their traditional territory (Aseniwuche Winewak Nation of Canada, 2002). Evidence of their habitation and history is everywhere. As part of the process of dealing with their historical and current land use issues and the loss of their traditional lifestyle, they conducted and completed a Traditional Knowledge, Land Use and Occupancy (TKLUO) Study. The study was initiated by the Elders, community members and the administration of the AWN. In particular, the Elders wanted industry and government to consult the AWN with the goal of protecting and preserving the environment and current historical uses of the land (Aseniwuche Winewak Nation Business Plan, 2003).

The funding for the study was initiated in 1998. Once sufficient funds were available, the inventory was launched in 1999. Consultants were hired as required, utilizing a Participatory Action Approach. The purpose of the study was to identify, as much as possible, the area and sites historically occupied by the members of the Nation. Interviews and mapping sessions were conducted with the Elders and those who were long-time hunters and trappers. The maps were reviewed and sites were later visited. Global Positioning Satellite (GPS) equipment was used to get detailed map readings of the sites. Sites identified included burial, ceremonial and spiritual sites, important gathering and hunting areas, cabins and other traditional pursuits. Although this study is ongoing, this portion is now mainly complete. The community has maps, Elder profiles and historical facts, volumes of archival information and a GIS database of many of the

sites and areas. A comprehensive draft of this information has been completed and the Nation is in the process of finalizing their "book".

Funding for the study came from the Province of Alberta, plus oil and gas, mining and forestry companies. The Aseniwuche Development Corporation was also a major sponsor. The project was a huge and challenging undertaking for the community, but the AWN has successfully utilized their study to develop processes and applications that have successfully established respect for the knowledge of their Elders and their traditional land uses with and within other management systems and programs. To date, they have used the study for nineteen different types of applications that "integrates" portions or all of the information collected to benefit the Nation. The following sections outline the various applications within and outside their own community.

3.6.2 Consultation Protocol

In 2002, the AWN embarked on a process of developing and documenting a Consultation Protocol for other land users when working within their traditional territory. They want to work cooperatively with them to preserve their own history and resources for future generations, while respecting other land users' legal rights for development (Aseniwuche Winewak Nation of Canada, 2002). A standard consultation protocol assures other land users they have consulted with the community and their administration through a mutually-acceptable process. A standard process improves the credibility and effectiveness of the AWN, similar to the scientific processes familiar to industry. The AWN also wants to work with their partners to develop a system of integrated land use management that will protect their own diverse interests by incorporating the knowledge

and values of the community. They felt confident that they could consult effectively as a result of having documented their information during the TKLUO Study. The process of consultation was similar to the experience they had during the study, when they worked with maps and other information.

This Consultation Protocol and process has four phases. These include:

- Phase 1 - Information Sharing and documentation of community concerns;
- Phase 2 - Community Consultation;
- Phase 3 - Integration of Traditional Knowledge into Management Practices;
- Phase 4 - Cooperative and Integrated Resource Management.

3.6.2.1 Phase 1 – Information Sharing and Documentation of Community Concerns

This phase is an invitation to companies to visit the offices of the AWN and introduce themselves and their business, as well as the development projects they are planning or initiating. It is also an opportunity to get to know the AWN, their policies and expectations. The AWN wants to know whether the company has an aboriginal policy or a community relations liaison.

After the first meeting, the AWN wants to meet with the company again in order build a relationship and to learn about each other. They want the company to give a visual presentation to the community about their project, with maps and photo mosaics, followed by an open discussion. Translation is provided to the Cree-speaking Elders and community members. The companies are asked to present the information and plans prior to applications being made to regulatory bodies, to ensure that project and site concerns of the AWN are taken into account and integrated into developmental plans. In

cases where there is no regulated process, the community wants advance notice of the development in order to identify any concerns. They are prepared to share their traditional knowledge and information with the company, as they believe that the sharing of information will lead to a common understanding of the nature of each others respective businesses, policies, expectations and concerns.

3.6.2.2 Phase 2 – Community Consultation

To the AWN, consultation means meeting with them to seek information, advice, take account or seek permission or approval for a proposed action. Consultation is required when other land use activities impact the members of the community. The AWN wants other resource users to consult all members of their community, including Elders, trappers, youth, Cooperatives and Enterprises, board members, hunters, gatherers and students. These people and some of their ancestors have hunted, fished, prayed, gathered, camped, raised their families and used this land for thousands of years. Thus, they expect that other land users will ask the community for their concerns and comments on projects they are planning. These activities could be seismic, exploration, drilling, pipelines, industrial developments, timber harvesting or mining. The community will ask questions regarding the activities of the project and the safety for animals and other land users, like hunters. They will then provide concerns and comments on the proposed development. Consultation will result in a good understanding of the proposed development and a commitment to work together to mitigate community concerns.

3.6.2.3 Phase 3 – Integration of Traditional Knowledge into Management Practices

The AWN believes that people who live on the land and use its resources have an intimate knowledge of the distribution, function and relationships of those resources. This type of knowledge has an important contribution to make in many established processes, programs and systems, particularly environmental impact assessments. These studies often lack long-term baseline data and the ability to predict reliably, the long-term effects of a project. Traditional knowledge and land use information can assist with these problems. To accomplish this, the AWN has proposed that other land users and the community work together to ensure and coordinate the following:

- The community's GIS database is employed to perform an initial search for traditional sites and land uses within or near a project site or area;
- Elder map consultation will provide preliminary confirmation of GIS findings and identify new sites;
- The community's participation in helicopter fly-overs and site visits will provide final confirmation of impact on traditional sites and land uses;
- The community's participation in socio-economic impact studies will record their concerns about the affects of a project on their traditional lifestyles;
- The community's review of environmental plans will give it an opportunity to provide feedback on environmental concerns and associated mitigation;
- The community's participation in timely baseline studies is important in developing long-term relationships, information databases and enhancement of the community's GIS database.

These guidelines to integration and utilization of their traditional information are supported by the Government of Alberta in its Aboriginal Policy Framework (2000). In that report the government indicates "the importance of working with the leadership and Elders of First Nations and with industry to develop baseline studies of traditional uses" (page 18). Further, the government "recognizes that sacred and culturally-sensitive

information that may be collected through a traditional use study should not be widely shared" (page 18) and are committed to "negotiate protocols with the Aboriginal People concerned regarding the management and security of sensitive information." (page18). They further commit to "work with the leadership and Elders of First Nations and aboriginal communities that have concerns about specific public land areas, and industry to identify and place notations on specific sites"(page 18). In addition, the Government of Alberta makes a commitment, where appropriate, to "consult affected Aboriginal People about proposed regulatory and development activities that may infringe on existing treaty, Natural Resource Transfer Agreement or other constitutional rights" (page 18).

3.6.2.4 Phase 4 – Results

In this phase, the specific concerns and comments on proposed developments have been discussed and appropriate actions have been taken to mitigate the concerns and/or they are documented in the development plans, applications or permits.

3.6.2.5 Phase 5 – Cooperative and Integrated Resource Management

As discussed previously, Western scientific concepts of resource management are foreign to Aboriginal People. They imply a human dominance and control over the natural environment. Aboriginal People have long held a holistic view of their environment, seeing it and its components as having equal value with themselves. To this end, the AWN supports the idea of a cooperative community or local integrated resource management system, based on a partnership of equals, between the land users, the

community and the government. This system also understands the interconnection of all things and the impact one activity can have on people and the environment and therefore is based on cooperation, communication and consultation. The AWN outlines four main principles or components of a community management system based on the research of Furgal (1996).

- The first principle utilizes a holistic approach to the collection of information;
- The second principle includes a system that is flexible and open, with an understanding of alternative forms of knowledge;
- The third principle is the utilization of adaptive decision-making processes, which are initiated and directed by local institutions or communities;
- And the fourth principle or component is a mobilized base of human resources.

The AWN understands the challenges of creating a cooperative community management system that integrates the concerns, processes and information of all concerned. One of these challenges is a lack of provincial or federal direction or policy regarding the integration of traditional knowledge into or with current management systems. This makes it confusing for other land users, who are unsure whether they need to consult Aboriginal People and if so, to what extent. Prior to and subsequent to the *Haida* court case, some organizations have indicated that it is the government's responsibility to consult directly with Aboriginal People regarding resource developments. Also, many of the land users do not understand traditional knowledge or the systems of the communities. They have different relationships with the land and approaches to land management, and their management boundaries are often different from those of the community. It is imperative that these issues are resolved soon, as there is an increasing

amount of industrial activity within the traditional territory of the AWN, making it difficult for them to consult with land users in a timely and effective fashion.

3.6.3 Consultation Manual

The AWN put together a manual they could distribute to government and industry that provides information on the community and their policies. This document includes their consultation protocol, business plan, policy documents, Terms of Reference for the TKLUO Study, map of their traditional territory, map review process, demographics and cultural information. They see the manual as providing tangible information about the community, which in turn gives them credibility and integrity. Further, it ensures that each company or organization is provided with the same information and can consult with the AWN utilizing a consistent format and process. It also helps the administration to provide a predictable process of consultation so they can be confident they will get consistent results from companies, even when they deal with more than one person from a company. It also provides a process whereby the community and its members are engaged in the consultation.

The process and manual have been well received. Consequently, the AWN is often invited to give presentations to companies, governments and conferences. Many companies and organizations have been interested in discussing the AWN's information or processes further. The AWN welcomes this type of dialogue, as it reassures the companies of their knowledge and experience, not only of traditional knowledge, but of technological knowledge as well (e.g. GIS and GPS). This knowledge helps the AWN to communicate effectively with these groups for the benefit of all involved. It also helps to

build trust and relationships with an organization and/or its representatives, so they can better understand the goals and objectives of the community.

The AWN has also been approached by organizations to assist with the development of a manual for other aboriginal communities. They are willing to support other communities in any way they can. For example, they have assisted the Nakowinewak Nation from Hinton with some of their resource issues and concerns.

3.6.4 Map Review Process

As part of the consultation process, the AWN has developed a Map Review Process (Aseniwuche Winewak Nation, 2002) that allows them to determine whether a particular disposition is in conflict with an existing cultural site or area. This is partially a computerized data management system and partially a manual system. In their computerized system, most of their cultural sites have been identified using a Global Positioning System (GPS) along with appropriate map, photo and traditional knowledge gathered for each site. The legal land description of each site has also been determined. Along with this system, the community puts buffers or areas around each cultural point identified. The size of the area varies according to the type of site. In addition, a weight or importance value is given to each site. A concentration of sites indicates an area of intensive use and may be combined to produce an exclusion zone.

Applicants are asked to provide a map and legal information regarding their disposition. The dispositions are entered into the system, along with their legal land description, and checked to see whether any cultural sites occur within a particular radius of the disposition. If one or more does occur, then it is identified for further

investigation; otherwise the map review manager will grant approval to these dispositions. A form is completed and provided to the applicant indicating approval. A fee is charged for processing the disposition.

The remainder of the sites near the development will require careful assessment to determine the type of cultural site and associated activities, as well as the potential impact. It may also require a field check to determine the extent of possible conflict. These sites require more time and consultation with the AWN. Elders may also be consulted to determine the potential impact. Monetary compensation is required for their efforts.

Most companies have been very pleased with this process, as the written approval of their application provides a certainty that they have consulted with the AWN and are not in conflict with their land uses. This gives assurances to companies and their shareholders that they can proceed with their activities without worrying about future conflicts or any possible delays to their projects. Companies do not have a problem with the initial fee, as they understand that the AWN must recover its costs.

Working with this system has enabled the AWN to communicate and dialogue with industry and government about GIS and data management systems. It also provides the AWN with a dependable long term process that can be operated by more than one person. This gives them a sense of independence regarding decisions they may need to make or are asked to make regarding the protection of their traditional or cultural sites. For example, the government or industry may have its own data management system, and may want Aboriginal/First Nations People to contribute their data to their system to make planning decisions regarding land use activities. This type of activity could bypass

consultation with aboriginal communities, even though an organization may protect their sites. The AWN is now in a position to decide whether it is necessary to provide their traditional data or negotiate other options for sharing data.

3.6.5 Partnerships

The AWN has been proactive in its approach to form partnerships with industry and governments. They have developed a paper outlining their principles of partnerships, called "Building Confidence – Gaining Partners." This document outlines their issues, including building capacity for self-governance, increasing community services and infrastructure, preserving the land, resources and traditional sites for future generations, increasing community wellness and building capacity for self-reliance.

The AWN developed a "Co-operation Agreement" which they have signed with different sectors of industry and other organizations. This agreement addresses the communities concerns related to the impact of resource developments, primarily oil and gas, on their community and traditional use. It includes a list of definitions, information on the objectives of the agreement, purpose and principles, term and termination and dispute resolution guidelines. It also includes information on their hunting grounds, harvesting practices, trapline livelihood impact mitigation and compensation, short term interim damages paid to trappers, long term damages paid to trappers, a wildlife impact assessment and funding and Aboriginal rights. The agreement discusses participation in their Environmental Co-Stewardship Committee, participation in a preliminary study, an Archaeological and Land Overview Assessment, consultation, training and scholarship

funding, Community Development Fund, training and business opportunities, copyright and disclosure.

They believe that through relationship-building and agreements, there will be increased consultation with the community. This will result in shared knowledge, expertise and learning, as well as shared program and equipment costs. Partnerships will result in improved planning, implementation, and leadership processes, efficient use of resources and realistic solutions to community problems and issues. This will then enable the community to heal and grow. It will allow the community to participate and contribute to responsible and sustainable stewardship or co-management of the land and the preservation of natural resources and their cultural sites. For example, it was through these partnerships that the AWN was able to initiate their TKLUO Study, as well as work with industry to utilize their traditional knowledge and protect their land use sites. They have also obtained contracts with some of these companies to work on their projects. The AWN has been working with both provincial and municipal governments to provide services to their community. These partnerships are seen as "win-win" situations, as they build relationships, open channels of communication to resolve conflicting land use issues related to the community or land use sites. They can also provide economic opportunities for community members. Some of the organizations with whom the AWN has built relationships or signed agreements are Weyerhaeuser Canada, Smokey River Coal, Alberta Power, Chevron, Suncor, Alberta Natural Gas, Grande Cache Tourism and Interpretive Center, Grande Cache Chamber of Commerce, Alberta and Municipal governments, other aboriginal communities and contractors and Friendship Centers.

3.6.6 Northern East Slopes Sustainable Resource and Environmental Management Strategy

The AWN participated in the Northern East Slopes (NES) Sustainable Resource and Environmental Management Strategy, which was established in June 2000. That project was initiated as a prototype for other regional strategies in Alberta. The NES covers more than 7.7 million hectares and includes several communities, as well as part of the traditional territory of the AWN. The project recommends sustainable ways for land and natural resources to be managed at a regional scale for present and future generations. The President of the AWN, David MacPhee, was the Aboriginal member on the Regional Steering Group for the Strategy. There was also an Aboriginal Task Team in which they participated. Members were selected for their leadership qualities and their knowledge, skills and experience in community, resource and environmental management. They were appointed by Alberta's Minister of Environment. The group was responsible for leading the strategy and developing recommendations. The Strategy was completed in May 2003 (Alberta Environment, 2003). The recommendations include strategies for sustainability, cumulative effects, land use management, economic sustainability, aboriginal perspectives and traditional knowledge, participation, relationships and consultation.

Community members felt they learned much from their participation in the Strategy, including the individuals and groups involved in this type of planning, government processes, mandates of government departments and problems with regional planning (Personal Communication R. McDonald, 2003). And they learned a new language of terms, acronyms and processes associated with regional planning. It was also a beneficial experience because of the contacts they were able to make and the support they got from

the various government departments. Furthermore, they were able to help educate people regarding aboriginal issues, traditional knowledge and land use, while raising the profile of the community. This level of participation was assisted by the knowledge and experience attained from completing their traditional land use study.

3.6.7 The Foothills Model Forest – Aboriginal Involvement Program

The Foothills Model Forest is located in west-central Alberta, with its office at Hinton. Its research area covers the Forest Management Area (FMA) originally owned by Weldwood of Canada Limited and recently purchased by West Fraser Timber Company Limited. The Model Forest is part of a federal government program and is one of eleven model forests across Canada (Foothills Model Forest, 2005). The mandate of the Model Forest Program is to implement working models of sustainable forest management, in particular the concept of integrated resource management. The program is funded and administered by Natural Resources Canada and the Canadian Forest Service, as well as other partners. It has initiated an Aboriginal Involvement Program to involve aboriginal communities whose territories occur within its research areas. To this end, they have formed an Aboriginal Steering Committee at the Foothills Model Forest. One of the mandates of the program is to document and incorporate the traditional knowledge and land use of local aboriginal communities into the Model Forest's sustainable forest management processes. They also hope to develop an Aboriginal Community/Industry "referral process."

Because its traditional territory covers part of the FMA, the AWN is one of the members of the Aboriginal Steering Committee, along with other First Nations and

aboriginal communities. And one of the AWN's managers, Rachelle McDonald, sits on the Board of Directors as a representative for non-Status Aboriginal People. The AWN and the other aboriginal communities have been involved in developing the terms of reference for this program and have been vocal in this regard. The communities have successfully negotiated a "Guiding Principles Agreement" with the Model Forest regarding the support, documentation and incorporation of their traditional knowledge and land use. The AWN were committed to taking the time necessary to negotiate an agreement that is good for their community, as well as to provide a means by which they could utilize their own processes to research, identify and manage land issues. The AWN's participation will provide them with funds to further their research of traditional sites and history within their traditional territory, especially in Jasper National Park and Willmore Wilderness.

The AWN has made a substantial contribution to this process, due in part to their experiences with their TKLUO Study and other initiatives. They often take on supportive and consultative roles when working with the Model Forest and the other communities, providing information and suggestions on how to collect, store and utilize traditional knowledge and land use information and assisting with the training of interviewers. In addition, they provide a translator for the Elders at some of the meetings. Their participation in the Model Forest is seen as an equal opportunity to have involvement in quality research and development of local sustainable forest practices, without the political influences of government.

3.6.8 Jasper National Park Partnership and Reconciliation

As mentioned earlier, the ancestors of the AWN were evicted from Jasper National Park in 1907. This event was an emotional and painful experience for the ancestors of the AWN. These memories and feelings have been passed down to their children and grandchildren and were documented during the TKLUO Study. The amount of information related to these experiences highlighted this as a community issue. Although the AWN acknowledges this event is part of their history, at the same time, they would like to heal those painful experiences and their relationship with the Park. To that end, they have formed a partnership with the Park. This partnership was developed for a number of reasons, including access to their historical data and traditional sites, and to develop a reconciliation process with the Park.

The reconciliation process is important to the AWN. It is a healing process for the entire community. This process is being carefully planned by the AWN in order to allow Elders and other members to openly express their emotions regarding this important event in their history. They hope to plan a series of meetings so that Elders and the staff of the Park can meet and discuss the event and its consequences. Through those meetings, they want the Park to recognize this was their homeland and they have contributed to the Park and its history. It is hoped that the process will provide a means for the community to forgive the Government and the Park for the eviction, and let go of the painful emotions associated with the event.

A partnership with the Park will also provide the AWN with greater access to traditional sites and information within the Park. This will enhance the information the AWN has collected for their TKLUO Study. The community is also prepared to provide

information to the Park, to identify sites and to clarify information regarding events or historical sites.

3.6.9 Resource Development Projects

Through the development of their Consultation Process, Consultation Manual and the process of completing their TKLU study, the AWN has been proactive in working with industry and government on various aspects of resource development projects. These include resource inventories, environmental impact assessments and socio-economic studies. Elders and other community members have a wealth of knowledge about plants, animals and the land which has been gathered through years of study and observation. These people are seen as "community scientists", and have been involved in a number of development projects. As they gain more experience with these types of projects, it is easier for them to identify and address resource development issues and concerns. For example, if a pipeline is proposed, then they are able to contribute to the approval process by identifying their issues and concerns, including traditional sites. From using the maps from the TKLUO Study, the Elders have become more comfortable working with the various scales of maps from development projects. In addition, they have been actively involved in these projects, by walking the areas of impact to identify sites of concern, as well as appropriate mitigation.

3.6.10 Environmental Impact Assessments

The AWN has been involved in a number of Environmental Impact Assessment (EIA) processes and hearings. For example, they participated in an EIA for an expanded portion

of the coal mine at Grande Cache. In this process they utilized their traditional knowledge and land use information to identify and address their concerns. The Elders and the administration have also provided meaningful input to impact assessments for gas plants and pipelines.

Their participation in these projects has not only provided a means to address their issues, but has resulted in increased confidence to express their concerns verbally as well as sharing the way they feel about the land – especially the Elders. Furthermore, their involvement has improved the negotiation and analytical skills of community members. As a result, they are able to provide greater and more meaningful feedback on projects, reports and proposed mitigation to protect traditional sites and wildlife habitat.

3.6.11 Vegetation Surveys

The community scientists of the AWN have provided and conducted vegetative information for impact assessments related to proposed developments within their traditional territory. For example, they initiated an assessment of potential impacts on their community in regards to a proposed expansion of the coal mine at Grande Cache. Part of this assessment identified food, craft, medicinal and spiritual or ceremonial plants. In addition, they expressed concerns regarding the removal of vegetation and the alterations of some habitats. If clearing were to occur they wanted to be involved in pre-disturbance harvesting. Members expressed interest in reclamation plans, and indicated they wanted to participate in those plans in their early stages to identify plants that are important to them and could be used for reclamation.

Community scientists have been hired as consultants to complete a plant study for a proposed gas line. Two Elders and two assistants were hired to complete a "Plant Identification Study," using their traditional ecological knowledge of the area. This study developed out of a partnership between the AWN and Alberta Natural Gas (ANG) Processing and Gathering. ANG was planning to construct a gas gathering system on the traditional lands of the AWN. The company consulted the AWN regarding their plans and operations and the potential impact the project will have on the lives of their people. As part of this consultation process, ANG agreed to provide funds to hire the Elders and recorders to identify traditional plants before the pipeline right-of-way was cleared.

The Elders and recorders were divided into two teams. They sampled five diverse ecological locations. The Elders identified the plants and the recorders wrote down the information, including the name of the plant (Cree and/or English name), photograph the specimen, its location and the uses of the plant. Most of the plants identified were used as medicine or food. Twenty-nine food plants and fifty-five medicinal plants were identified. Other plants were identified for crafts and domestic uses. No rare plants were found. However, the AWN considered it important to determine whether there were any, so that they could be relocated or their seeds collected before the area was cleared of vegetation. This information may be useful for reclamation purposes. In addition to the plants, the Elders paid special attention to Plante Creek, where they identified two fish species, one of which was the Bull Trout or Dolly Varden (*Salvelinus malma*), which has protected status in Alberta. In another area, the Elders located a one hundred year old traditional camping site. The information gathered in this study was added to the TKLU database, and was to be used for the planning and management of the pipeline.

3.6.12 Archaeological and Historical Surveys

The AWN participated in an archaeological and historical survey with a consulting company that was doing an EIA. In exchange for their participation, the company supplied the AWN with helicopter time and assistance to identify traditional sites. The company later worked with the AWN to compile a database of the sites and any associated information. This information was used to supplement the information that was collected for the AWN's TKLUO Study.

In another project, the AWN submitted a "test sample" of its traditional land use data to Alberta Community Development to publish in a limited version, in its "Listing of Significant Historical Sites and Areas" data base. This listing is utilized by developers to determine if any significant or historical sites will be impacted by their development. If it is found that the legal location of their development infringes upon the legal location of a protected site, government legislations require a Historical Resource Impact Assessment (HRIA) to be completed and submitted with the development applications to the appropriate licensing body. AWN sites triggered an HRIA on a proposed pipeline project in the spring of 2005.

3.6.13 Consulting Services

As a result of the AWN's extensive experience utilizing and applying their traditional knowledge and land use study, their consultation process, partnership agreements and joint ventures, they have gained a wealth of experience and knowledge in many areas. The community has been willing to provide advice and consulting services to members of their own community, such as trappers, as well as industry partners, governments and

other aboriginal communities who are undertaking similar activities. These ventures help to build long-term relationships and increase the economic well-being of community members. It also provides the AWN with an opportunity to practice consultative skills and to communicate experiences, while raising their corporate profile. These ventures are seen as win-win situations.

3.6.14 Research and Publications

Over the years, the AWN has been involved in a number of research projects with universities and other organizations working in their traditional territory. The results have been published in papers, reports, theses and books. Members have participated in research projects related to the use of fire by Aboriginal People and studies about their history. They have contributed to wildlife and habitat studies with government and industry, especially those related to the mountain and woodland caribou. In addition to doing their own TKLUO Study, they participated in research initiatives related to the documentation of traditional knowledge and use, including publications entitled "A Guide to Conducting a Traditional Knowledge and Land Use Study" (Garvin et al 2001), and "Best Practices for Traditional Use Studies" (Alberta Aboriginal Affairs and Northern Development,2003). They were also willing to participate in this research project.

3.6.15 Economic Development

The documentation of the AWN's traditional territory through their TKLUO Study is a way of informing industry and government of the area where they practice their

aboriginal right to hunt, fish and gather, as well as other cultural activities, and that they have an interest in the land use activities that occur there. The AWN wants to protect their traditional area and sites, but they also want to participate in and benefit from land use activities that occur within their territory. One of the ways they have accomplished this is by establishing the Aseniwuche Development Corporation. The purpose of the company is to provide a corporate body through which the community can directly benefit from land use activities in its traditional territory. In addition, by having a sound consultation process that addresses traditional land use issues other companies are more willing to participate in hiring members or forming joint partnerships.

3.6.16 Conferences and Workshops

Because of its thorough approach to consultation and its traditional land use study, the AWN has been invited to participate and/or make presentations at conferences and workshops. For example, members of the AWN were actively involved in developing the Alberta government's handbook on traditional use - "Best Practices Handbook for Traditional Use Studies" (2003). Many of the suggested best practices were similar to the ones the AWN had implemented for its own study. Members also participated in panel discussions at another Alberta Government workshop (2004) that was focused on the applications of traditional use studies. They have been invited to make presentations at forestry, oil and gas conferences, as well as to the International Association of Public Participation.

3.6.17 Cultural Awareness Presentations

Since initiating its TKLUO Study, the AWN has been asked to present Cultural Awareness workshops, particularly to its industrial partners. The purpose of these workshops is to promote understanding and awareness between the AWN and other organizations, especially about business and cultural perspectives. The presentations include an opening prayer, history of the AWN, location of traditional land use area, Elders stories about the plants and places names, aboriginal beliefs, taboos and offensive behavior. There is a discussion of their emotional bonds with animals and nature, and there is a display of items and artifacts. These workshops promote further opportunities for the integration and utilization of traditional knowledge and land use, with the activities of other organizations.

3.6.18 Community Awareness

After completing the TKLUO Study, the administration and other community members became more aware of the feelings, experiences and goals of their Elders. They have become familiar with the quotes of the Elders from their interviews, and use them in meetings. These quotes are very powerful, as they assist the administration to identify the goals of the community and its issues with other land users. This awareness allows the administration to attend meetings and make decisions that are acceptable to their Elders and community.

3.6.19 Trail Rides and Camps

Since the fall of 2000, the AWN has hosted annual trail rides and camps in their traditional mountain territory, to visit some of their sites and document others to add to their database. The Nation invites all their partners who helped fund their study, as well as future partners and interested individuals or organizations. These organizations include representatives from oil and gas, forestry, mining companies and government. The rides last three days or more and are guided by members of the AWN. Participants stay at a camp that is catered for their convenience. Teepees are set up for people to sleep in. Some of the Elders from the AWN are present. This provides an opportunity for people to learn from the Elders and about the culture of the AWN. It provides an ideal situation to build long-term relationships between the AWN and their current and potential partners, as well as help bridge any gaps related to cultural issues and understanding.

In addition to the trail rides, members of the AWN have been involved in Youth Camps for many years. At these camps they work with the youth and participate in cultural activities, such as prayers, talking circles, drumming and wilderness training.

3.6.20 Land Claim

One of the major reasons the AWN initiated the TKLUO Study was to support their land claim. This information, along with a genealogy and historical study, is being used to support their claim. The claim has been filed with the federal government.

3.7 Traditional Knowledge, Land Use and Occupancy Studies as a Foundation for Utilization

The above examples indicate the proactive approach the AWN has taken to utilizing and/or integrating their cultural knowledge, sites and perceptions with Western culture, organizations and land management processes. However, before this information was applied to the above, there needed to be documented cultural knowledge and land use sites. This knowledge can come from one person or from a group of people. As previously discussed, Aboriginal People have frequently provided specific information for programs and initiatives of either government or industry. However, a Traditional Knowledge or Land Use and Occupancy Study is probably one of the best ways to obtain information, not just of one person, but of a whole community. In addition, the AWN indicated that it was the experience and knowledge they obtained from conducting the study that assisted them to apply their information and data to other processes and situations. When examining other land use studies, it is apparent that this process is versatile, as it has assisted other groups to use the studies for a variety of purposes.

The first traditional land use studies in Canada were conducted during the early 1970s. The process was initiated in response to a new Canadian government policy that accepted the legitimacy of unextinguished Aboriginal rights to the land, particularly those portions that were not covered by a treaty (Weinstein, 1993). There was also a push to develop northern areas of the provinces by expanding roads, railway lines and communities, which resulted in a reduction of traditional employment of Aboriginal Peoples. There was an increase in global demand for energy and mineral resources during that decade. The government encouraged and subsidized the development of air

and ground transportation systems to promote these developments. That was when the mega-projects emerged, such as the James Bay Hydro-electric project in Quebec, the Mackenzie Valley Gas Pipeline Proposal in the Northwest Territories and the Syncrude project in Alberta (Weinstein, 1993). There were public concerns about the environmental impacts of those developments. Consequently, the federal government enacted Environmental Impact Assessment regulations and public reviews on the environmental and socio-economic impacts of such projects.

The above events were paralleled by a continuing drop in the value of fur, the further abandonment of trading and retail outlets and the collapse of certain wildlife populations (especially the caribou herds). Food shortages and altered seasonal travel forced some Aboriginal People to settle in permanent locations and to change their land use patterns. As a result, two land use zones emerged: one of intensive harvesting in areas close to communities, and another of harvesting in more distant areas where activities were more dispersed.

Aboriginal land use and occupancy studies arose out of this political, legal, social, educational and economic context. Those studies were conducted to identify the spatial dynamics of historical and existing aboriginal subsistence economics, land use and culture. They were also initiated to address the concerns raised as a result of resource developments and to gather information for negotiating land claims.

Such studies can vary significantly, depending on the specific purpose(s) or reasons they were initiated. The purpose of the study will determine the type and amount of information that is collected. A well known example of a traditional land use study initiated during the 1970's was the "Inuit Land Use and Occupancy Project" (Freeman,

1976) which became a model for more recent land use studies. It was initiated at the request of the Inuit Tapirisat of Canada, in order to research the past and present Inuit use and occupancy of the Northwest Territories of Canada. Funding was supplied by the Department of Indian and Northern Affairs. Freeman (1976) undertook to produce a comprehensive and verifiable record of Inuit land use and occupancy in the Northwest Territories. His study also provides an Inuit perspective of their relationship with the arctic landscape. This study was released in three volumes. The first volume identified and described a number of Arctic regions with subsequent documentation of Inuit land use and viewpoints. Volume Two is composed of a series of reports that were assembled to provide the reader with better understanding of the land use and occupancy data presented in Volumes One and Three. Volume Three included the land use maps illustrating the extent of the land use described. Seasonal movements of people and animals were included on the maps in order to give a detailed picture of how the natural environment facilitated or influenced movements. This volume also included descriptions of animal habitats, aspects of animal behavior, vegetation, weather, ice movements and geographic features (Freeman, 1976).

The Inuit people were fully involved in developing the methods and conducting the study. Freeman indicated that obtaining and analyzing data that was true to the Inuit perceptions created perceptual difficulties for non-Inuit people, and as a result some of the information was combined to address this issue. However, the most important aspect of the work was to present information that documents Inuit occupation in the Arctic "since time immemorial".

Another significant study during the 1970s was the Berger Inquiry for the proposed Mackenzie Valley pipeline. It considered the views and knowledge of the Inuit, Dene and Metis before a decision was made (Berger, 1988). Also at that time, the Union of British Columbia Indian Chiefs asked Hugh Brody to design a study to document the information of the Beaver and Cree people in northeastern British Columbia. Brody (1981) used PAR to obtain the required information. His study identified the hunting and fishing areas of individual hunters and entire communities. Berry picking, trapping, cabins and camping sites were identified. The resulting maps showed that Aboriginal People were interdependent, on each other and the land. One of the maps illustrated the changes that have occurred since the 1960s when settlement and northern exploration increased, and how those developments have impacted aboriginal land use. Besides maps indicating land use, the study indicated the impact that the pipeline would have on the community.

Another example of an aboriginal land use study that was initiated for a particular purpose was "An Examination of the Fort George Subsistence Economy and the Possible Consequences on it of the James Bay Hydroelectric Project" (Weinstein, 1976). The study began after the James Bay Cree of Quebec had successfully got an interlocutory injunction against the James Bay Hydroelectric project. They claimed that the development would significantly impact their way of life, which was largely based on harvesting wildlife and fish. The method developed for that study combined land use and subsistence harvesting surveys over one year, in order to provide a quantitative estimate of the distribution of animal and food harvest. The survey mapped the location of an annual harvest of about 40 species of mammals, birds and fishes. A computer was

used to convert the resulting data into food weights to map the spatial distribution of annual food harvest in the study area. The compiling of food harvests on lands to be inundated by the reservoirs and disturbed by the development project, were calculated to evaluate the effect of the hydro-electric project on the community's subsistence. During this period there were 1.5 million pounds of bush food harvested by the Fort George people. This study not only exposed the people to quantifiable data collection and computer analysis, it also provided them with experience in responding to any future developments in their traditional territory.

There have also been traditional land use studies that were initiated in order to address a number of land use issues that were occurring within their traditional territories. Those studies may or may not have included more than one community. One study was conducted by the Fort McKay First Nations (1994). Fort McKay is located adjacent to the oil sands developments near Fort McMurray, Alberta and their traditional territory covers part of the Forest Management Agreement of Alberta-Pacific Forest Industries. These activities, combined with an increase in the town's population, recreational and other industrial activities, were impacting the lifestyle of the people from Fort McKay. They needed information to deal with the many issues that arose. The community hired consultants who used a PAR approach to identify gathering and kill sites of plants, birds, fish, furbearer and big game species. The species were then grouped into corresponding land use maps. Other maps provided the location of traplines, trails and cabins. Seasonal activities were also identified, along with a comprehensive report on the information provided by Elders, who stressed the importance of continuing the practice of the bush economy. It was hoped that the information compiled would be put into a

GIS, but the necessary funds were not available at that time. However, with the information provided by community members, the Fort McKay First Nations were able to address some of their issues, and be involved in decision making processes and mitigation.

A review of the above studies indicates some variation in the purposes, methods, maps, reports and land uses. Moreover, some of the information is qualitative and some quantitative. These differences appear to be related to the purpose of the study, the methods of the researchers and the culture of the community. They also depend on the type and extent of impact of resource developments within traditional territories. Robinson and Sawicki (1996) indicate that the very act of documenting aboriginal land use and knowledge is an empowering process that leads to increased self-respect and self-reliance.

Despite these differences in traditional land use studies, it appears that the Inuit studies are one of the best examples of how to document traditional knowledge and land use, although a study such as these would be very expensive today. The above studies also suggest one method cannot adequately capture all aspects of the knowledge and land use, and that a variety of methods can be used to document TK and its applications. It may even be advantageous to combine more than one method, depending on the purpose and objectives of the study. In addition to methods, technological advances can provide increased capacity and a better process of managing and utilizing traditional data. Many of the First Nations are now using GIS to store, update and manage their own information.

Traditional land use studies have gained in prominence and importance with provincial governments and aboriginal communities, since the *Degamuukw* decision (Weinstein, 1997). Since the courts ruled that the British Columbia provincial government has a fiduciary responsibility for aboriginal rights under its jurisdiction, the government needs a body of information about First Nation land use and cultural geography to meet its obligation. The British Columbia government initiated the Traditional Use Studies Program to fund these studies (Weinstein, 1997), as they were seen as a way to obtain this data and to evaluate the effects of the government's resource management and development decisions.

Although aboriginal land use studies do not appear to be enough to ensure the protection of aboriginal land rights or the impact on aboriginal rights, the resulting maps and information establish a claim to areas the people have used. Moreover, they demonstrate that the fur trade, gold rush, treaty signing and trapline registration did not succeed in forcing Aboriginal/First Nation People off their lands, nor to stop using them in traditional ways. The increasing number and cumulative effects of a variety of industrial activities are creating new difficulties for communities, which is why some of them have completed these studies and are now using them to address their issues and concerns. But does the dominant culture have the will to make the changes to its system to address aboriginal issues? Western culture has a long history of exploiting any knowledge that serves its interests, filling a specific information need that science or its culture cannot fill, rather than using the information to solve problems that conventional science has failed to solve (Stevenson, 1998). Perhaps using this type of process can be an interim step towards a new and more holistic management system.

4.0 DISCUSSION

4.1 Barriers to the Utilization and Applications of Traditional Knowledge and Land Use

The above examples are evidence of ways organizations have utilized traditional knowledge information and systems for a variety of purposes. Although, they were successful in documenting a portion of their knowledge, the degree to which they have been able to apply and use this information with other systems is variable. However, it is through such attempts that the barriers to acceptance and applications of their knowledge and management systems can be identified, as are the key elements to successful applications. The literature and the organizations that have attempted to integrate different knowledge or management systems have identified a number of problems or barriers. Those barriers include the following:

4.1.1 Lack of Direction or Policy by Government on Traditional Knowledge and Land Use

In the past, provincial governments have been slow to acknowledge aboriginal knowledge, land use and values because of legal and treaty implications. As a result, many provinces have been hesitant to develop a traditional knowledge and land use policy. Aboriginal People have responded to this lack of direction and confusion over issues by limiting the amount of knowledge available to government or industry. A clearly stated government policy would make it easier for industry and Aboriginal People to know what is expected from them or required to identify issues related to treaty rights.

The former Northwest Territories (NWT) is the only government in Canada to develop a policy that incorporates traditional knowledge into the decisions and actions of government where appropriate (Abele, 1997). The federal government has attempted to include TK in environmental assessments. For example, a panel directed BHP Diamond Inc. to give "TK equal consideration with scientific research" in a review of a mine it was building northeast of Yellowknife, but there were no directions on how to incorporate this knowledge (Laghi, 1997).

4.1.2 Lack of Understanding of Traditional Knowledge

Over the past few years there have been challenges to the use of TK with scientific studies, because of the "spiritual" component of TK. This issue appears to be more of a misunderstanding of terms such as "spirituality" and "traditional," as well as the relationships among science, spirituality and the current relevance of aboriginal knowledge. Howard and Widdowson (1996) appeared to use spirituality as it relates to dead spirits, rather than in the context of a philosophical doctrine, where all reality is essential spiritual (Ferguson and Dunnigan, 1998). However, this debate did result in clarification of the differences between religion and spirituality. The spiritual teachings of Aboriginal/First Nation people are synonymous with "world view" and are part of the values of their society. As scientists and anthropologists have also observed, Western science has its own culture and values (Berkes and Henley, 1997).

Another conflicting issue is related to the control of nature. Western science is based on a premise of dominion over nature and the forces of nature whenever possible. Aboriginal/First Nations people consider control to be unethical, as all living beings are

equal and should be treated with the same respect as a human being, even when they are being used for a particular purpose.

One approach to these issues has been to focus on the traditional ecological knowledge (TEK) of a community rather than all of its knowledge (Stevenson, 1996). This knowledge is embedded in broader social, economic, and spiritual dimensions of the community. TEK would include the following:

- the knowledge of ecosystem relationships;
- specific environmental knowledge;
- a code of ethics and appropriate behaviors governing human-environmental relationships; and
- a community's recent experiences with resource activities and their effects on aboriginal lands, lifestyles, ecosystem components and relationships.

4.1.3 Different Languages and Communication

A major, yet not always apparent difference between aboriginal communities and non-aboriginal organizations is language. A community's language is strongly related to their identity and culture, both Aboriginal and science. Brody (2000) indicates that the word shapes the whole tenor of interpersonal behaviour creating many forms of misunderstanding, mistrust and bad faith. A language and culture also has the power to describe as well as create a landscape. And it is not just the meaning of a word that is important, but the context in which it is spoken. Consequently, language is not only a word, but a way of being or living. Therefore, there are limits to what translation can achieve, which identifies a further reason why traditional knowledge and land use issues cannot be discussed without the participation of community members. This is

particularly true when an aboriginal language is the first language of communication for a community or a generation. Even when a community's administration is bilingual, using English for their meetings outside the community, translation needs to occur for the people in the community, as some Elders may only speak their native language. For this reason, it may take a lot longer for a community to respond to outside issues. This may be further complicated where there is more than one community involved and they speak different languages.

There are also problems with how the information is presented. Western organizations are used to communicating in a written format, and many government or corporate regulations are supposed to be implemented on paper. This has created difficulties regarding resource development projects, as Aboriginal People may receive a notice, but may not read English or may not pick up their mail on a regular basis. Many communities are dealing with a wide spectrum of issues with a limited staff and may not even get to read a notice until past the deadline. Appropriate consultation protocols could address some of these issues.

Chapman (2004) identified a number of strategies to assist with communication problems. The first was to eliminate the use of technical words and jargon as much as possible. And where their use is unavoidable, they should be adequately explained. Participants also need to find the most effective method of communication, such as e-mail, fax, telephone, mapping technologies, face-to-face discussions, posters and pamphlets. Many communities prefer to have face-to-face discussions that include visual materials to explain concepts or ideas.

Communication problems also occur when conducting a TLUOS. Traditional knowledge is transferred and learned verbally and through demonstration and first hand experience. Other land users, on the other hand, like discussing and demonstrating their knowledge and information with the use of maps. They would also like to see aboriginal communities present their data on maps. Although many Aboriginal People are comfortable with topographic maps, of 1:50,000 to 1:100,000, they may have problems with the specialized land use maps, such as forestry maps. Training may be required to use these maps and associated technologies.

4.1.4 Conflicting Land Uses

Many land use managers believe that if they consider Aboriginal/First Nation land uses, doing so will prevent the land from being used for other purposes. They get particularly worried when they look at the large traditional territories identified by a community. This is an issue that seems to have prevented government and industry from consulting and negotiating with communities over conflicting land uses along with fears of aboriginal claims and increased rights to the land. As a result, many traditional sites, including graves, have been destroyed by resource development activities. The "bush" lifestyle and culture of a community has been impacted severely. This position ignores the Aboriginal and treaty rights of Aboriginal Peoples – to harvest fish, wildlife and wild plants for their own use - rights that have priority over other resource uses (Supreme Court of Canada, *Sparrow*, 1990) except for conservation.

If there is to be cross-cultural understanding between these two groups, land use managers must consider the traditional uses of Aboriginal/First Nation peoples, as they

would other resource uses, particularly if they intend to practice sustainable, ecosystem or integrated resource management. Aboriginal/First Nations people have indicated they do not necessarily want to exclude large tracts of land from development; but they do want to negotiate the protection of important and sacred sites or areas or share the benefits of developments, as indicated by the First Nation participation in provincial programs. This was one of the goals of the AWN when they participated in the Northern East Slopes Sustainable Resource Environmental Management Strategy.

4.1.5 The Different Relationships with the Land

The traditional knowledge and land use of a community is developed over a long period of time from a set of relationships with an area of land. This means that traditional knowledge and culture is not static, but does change and adapt over time. Members of a community have a relationship to the land that is personal, intensive and extensive. They have survived and buried their dead on the land. Furthermore, they see the human being in a larger social, physical and environmental context, one where people belong not only to a human community but to a community of nature as well. This relationship places people in an environment of reciprocal responsibility and mutual obligations to the land (Rosenstand, 1998).

Industry and most of its employees have not had an opportunity to establish this kind of relationship, as most companies have been around for only one or two generations. Some companies have their headquarters in a town or city and go onto the land for a few months or days at a time. Also, employees seldom stay in an area their whole lives but rather move to urban centres away from the land. Their relationship with nature tends to

be more utilitarian. Animals and other life forms are seen more as things to be used. They are not accorded intrinsic rights like a human being (Rosenstand, 1998). Of course, there are some people, such as foresters and biologists who have lived and/or worked on the land most of their lives or careers, and like Aboriginal People do value and appreciate "nature" not only for how it can be used, but for its beauty and enjoyment.

Most resource development activities occur in a rural setting, where most aboriginal communities are located. Although most communities have a very high unemployment rate, many members do not wish to go to an urban setting for work and would prefer to work close to home. And they have a strong relationship and high stake in the activities on their traditional lands. This makes them the ideal people to assist governments to plan resource activities, and for resource companies to employ, as they know the characteristics of the land better than anybody.

There is also the issue of land ownership. Companies are given tenure by the government, giving them the responsibility and right to manage the land and its resources. Government and industry see the land more in terms of its commodities, rather than part of a community and its heritage. Contrarily, most Aboriginal/First Nation people feel they are part of the land and no one can own it; rather, they are custodians of the land for future generations. However, their treaties have given them aboriginal rights to hunt, fish, trap and gather. Consequently, when these two parties discuss the land, they see their connection, rights and investment in the land differently.

4.1.6 Different and Overlapping Boundaries

One of the problems common to most planning processes is the different boundaries of the users. For example, many Aboriginal/First Nation peoples have a broad boundary of traditional use or what is often called their "traditional territory." In most cases, the territory identified for traditional land use studies is much smaller than the territory they used previously. Many communities are now outlining an area of concern, which is usually smaller than their traditional territory. These areas tend to have a concentration of traditional uses or issues. On a more local level, communities may use watersheds or traplines as areas of concern.

Resource developers have different boundaries, depending on the resources they are extracting. For example, forestry companies have FMA's defined by provincial governments. A mining area may be small or large, open pit or underground, depending on what and where they are mining. Provincial governments have other types of boundaries they use for planning purposes, e.g., regional or local planning. These may or may not coincide with industry's boundaries of use.

Another issue is the overlapping boundaries of traditional use by two communities. This was not generally a problem in the past, as it showed areas where two communities interacted or where their usages were complementary, often seasonally. In many cases, at the territorial level, communities were and are willing to share resources where their boundaries overlap. Dave MacPhee, President of the Aseniwuche Winewak Nation of Canada, indicated that these are areas where communities can come together to protect their traditional sites (Pers. Comm., 2004) However, some communities want the total benefits of their traditional area, even when it overlaps with the territory of another

community. This is an issue that needs to be resolved. For the integrated planning and management of natural resources, all parties will have to come together to develop new common boundaries of planning or find a way to utilize different boundaries for one plan.

4.1.7 Different Approaches to Land Management

As indicated previously, there are conceptual and practical differences in the systems of land management between Aboriginal/First Nations people and government or industry. The fundamental difference between them seems to be one of management verses relationships (Stevenson, 1999; Natcher, et al, 2005). Aboriginal/First Nation people consistently indicate that they do not manage resources, but rather they endeavor to manage human relationships with the natural world and the resources upon which they depend. Aboriginal management systems promote sustainable use by decentralized decision-making and expanded user participation. Typically, these systems include numerous unwritten social norms, laws, understanding, and conventions that govern the use of resources. In turn, they serve to maintain and perpetuate sustainable relationships between humans and the natural world (Stevenson, 1998).

Government and industry, on the other hand, usually plan and manage individual resources, although this can also include the management of human use, such as hunting permits. And since each resource is usually managed by a different department or group, often one resource user or government department does not know what the other is doing. Moreover, cumulative impacts occur, resulting in destruction or degradation of the environment and other land uses.

The concept of managing resources is also problematic. The current bureaucratic management structures are now entrenched into our systems and within the minds of researchers and scientists. They have a great deal invested in scientific management as a profession. Nadasdy (1999) indicates that because of this they tend to view traditional knowledge as a supplementary body of information which does not threaten the fundamental assumptions of wildlife management itself. That traditional knowledge might be used to re-think unexamined assumptions of scientific wildlife management itself is never entertained.

Natcher et al (2004) further indicates that although aboriginal communities may adopt the terminology of land management, the concept of managing the land is inconsistent with the actual relationships they have with the environment. Consequently, by imposing concepts that originate in western management practices, such as conservation, the actual relationships that exist between Aboriginal People and the world in which they reside is misrepresented. Also, by applying these terms, governments effectively further their own control over natural resources and deny alternative ontologies and systems of knowing.

The above barriers to the applications of traditional knowledge and the protection of cultural sites within a Western system suggests that to avoid the imposition of one culture's management system on another's, it may be appropriate to consider separate or complementary jurisdictions with well-defined responsibilities (Stevenson, 1998). However, if there is to be a partnership, then there must be a sharing of power and responsibilities to meet the goals and aspirations of each party. Further, he suggests there is a need to apply traditional knowledge management philosophies and systems, as there

is a process ready to be developed, as well as a right to be exercised. Another alternative would be the development of a holistic system similar to the practice of Integrated Resource Management and Planning may be a solution to address this issue. Although, not the type where government makes the decisions, but where a group, including Aboriginal Peoples have decision making authority. This kind of approach would also bring the two types of knowledge systems closer together.

4.1.8 Cooperative and Co-management Processes

One factor that has apparently inhibited the full utilization and integration of traditional knowledge is the clarification and acceptance of cooperative and co-management processes. In the relevant literature, the two are usually discussed together and although they are ultimately related, they are essentially two separate processes. The former involves the cooperative discussion and consideration of two separate world views interested in a common land base. Provincial Memoranda of Understanding (MOU's) are a reflection of this level of partnership. These MOU's are partnerships in which resource management and socio-cultural benefits are addressed. However, Hickey and Nelson (2005) indicated that MOU's can vary broadly in scope. Some are very limited and resemble contracting relationships, while others are broad in scope, providing extensive interaction between the parties to achieve their goals, as well as building capacity for First Nations.

The next level of interaction is co-management or joint ventures. This level is about joint decision making, jurisdiction and administration of the land by one or more organizations, as well as building capacity for First Nations. However, the latter is tied to

power and control of natural resources, not the discussion and consideration of two systems of management or world views about the natural world. Examples of this level of decision making does occur in Canada, such as the Beverly-Kaminuriak Caribou Management Board, (Notzke, 1994), but generally it has been rejected by most of the provinces. It remains to be seen if recent court cases will force the establishment of other joint committees or boards of this nature.

From the research there appears to be a continuum of levels of integration of systems of knowledge, from information sharing to joint decision making. Notzke (1994) provides a set of definitions which identifies the different levels of collaboration, management and power-sharing:

1. INFORMATION - This constitutes the lowest level at which the management process is opened to users. It is essentially one-way communication, often applied to user groups with rules and regulations, schedules and changes.

2. CONSULTATION – This level is an explicit attempt to obtain the views of users. Although there is face-to-face contact, resource users may be heard but perhaps not understood. Their views may or may not be acted upon.

3. COOPERATION - This stage is more than just an invitation to talk. Community information is actively sought, and the use of native involvement can occur. However, the process of information gathering follows the government agenda.

4. COMMUNICATION – At this level, an actual information exchange occurs. Local concerns begin to enter research agendas and resource management decisions. While community concerns are responded to, the government retains all decision-making power. Memoranda of Understanding are often signed at this level.

5. ADVISORY COMMITTEES - The establishment of these committees sets the stage for joint decision-making. There is an agreement to share power and responsibility for resource management through joint boards or committees. However, although these committees have advisory powers they do not make the final decisions. Memoranda of Understanding can be signed at this level.

6. MANAGEMENT BOARDS – These boards represent a higher level of decision making. At this level local users are actively involved in policy and decision making. A board's decisions are usually binding.

7. PARTNERSHIP OF EQUALS - At the highest levels of cooperation and co-management, joint decision-making is institutionalized and there is community control and partnerships. Where resources are managed locally, most or all management power is delegated to the community. In the case of resources that cannot be managed at the local level, resource users participate in decision-making as equal partners.

Some of the principles of the above levels of management could be applied to the utilization of the two systems of knowledge, without getting involved with the political, treaty and ownership issues related to co-management. Although ultimately, if one is to fully utilize the two knowledge systems for one purpose or process, then the power to implement the decisions derived from that system will be required.

4.2 Proposed Critical Elements of the Successful Utilization of Traditional Knowledge and Land Use during Resource Planning and Management Activities

The above information identified a number of barriers that organizations have encountered when using two knowledge systems to form a new system and/or utilizing traditional knowledge with existing systems. Further, the above examples and classifications clearly indicate that there is no single standard working model can be applied to all situations. However, based on the experiences of others, there appears to be a number of key elements that facilitate the successful utilization of two or more knowledge systems, especially when planning and managing local resources. These elements include the following:

4.2.1 A Common Vision

When a group of individuals is brought together for a common purpose, one of the first things needed is the identification of a common vision. This does not mean that each individual party must adopt the others' paradigm, but rather that each has the same objective, such as an integrated and sustainable community-based land management system or plan. A common vision is a shared view that can exist in the mind and will of each participant. Ideally, it will be one to which all participants are committed to and will serve to rally divergent interests and issues. Participants will bring their life experiences, values and expectations to this initiative, but it is the vision that will help to focus initially on their similar interests, rather than on differences. Participants will realize that, in the process of meeting and working with each other, their common vision as well as their own individual visions, can be realized (Schaefer and Voors, 1986). That vision may be revisited as participants move through the process.

4.2.2 Relationship Building

In the past, relationship or community building was apparently underscored as part of the consensus-building process needed for group participants to work together toward a common vision. Relationship building is needed in order to create an atmosphere of trust, to facilitate open dialogue and expression of feelings and mutual respect (Murray, 1998). It is a prerequisite to cooperation, process design and dispute resolution. Therefore, there must be a procedural component that embraces and legitimizes emotional, psychological and relational needs of the participants (Murray, 1998)

One way to build relationships is for the group to spend time together outside meetings. This could include social get-togethers in respective communities, or tours into the area they are planning, such as the trail rides hosted by the AWN. During this time, the participants can identify and discuss areas of interest or conflict and values related to these areas.

To assist with this process, it would be beneficial for the group to review their meetings and the quality of their working relationships periodically. Only through a review of their meetings and decisions can they begin to see what they have or have not achieved, while they gradually build trust and loyalty (Schaefer and Voors, 1986).

4.2.3 Mutual Respect and Trust

Bombay (1996) suggests that respect and trust can be generated through understanding, open communication, consensus, mediation and honour. Building trust is important in order to discuss land issues and the utilization of TK in a safe and honest manner. Individuals must trust the sincerity of other group members, and the scientific research on which decisions are based. Mutual respect and trust will come with relationship building as participants understand the needs, interests and values of other participants.

The fiduciary responsibility of the Crown is also a trust relationship, especially in regards to aboriginal rights and the impingement of those rights. It is an important issue, but one that cannot be dealt with in detail within this thesis. However, it has been discussed in regards to the Haida court case and the impending Mikisew Cree court case.

4.2.4 Equal Decision-Making Authority

In order for community or local integrated resource management to succeed, there must be equal decision-making authority among all participants. This is important because past experience and management policies may have designated one of the organizations represented, such as government or industry, to have ultimate decision-making authority. The new equal authority must be affirmed "top down" from senior managers of the provincial government and industry, and "bottom up" from field personnel and participating citizens (Gilmore, 1997). In order to facilitate this process, it may be useful for the group to chart out their organizational relationships and identify past conflicts and cooperation, and to anticipate and resolve potential problems (Lee and Balkwill, 1996).

4.2.5 Identify Barriers and Benefits to the Utilization of Traditional Knowledge and Land Use

Previous discussions have identified some barriers to the utilization of traditional knowledge and land use with non-aboriginal systems. It would be useful for a group to further explore the literature to identify any additional barriers, and to identify their own perceived barriers. This exercise will lead to a greater understanding of each others point of view, which should lead to greater respect among participants.

At the same time, it would be useful to look at the benefits of use. This is tied to the common vision, principles and goals, but will help to strengthen the group's determination and incentive to fulfill its objectives, not only for themselves, but for each other as well. For example, an Aboriginal/First Nation community may see the benefit of

local management as providing respect for the knowledge of their community. This is something all groups can identify with.

Robinson and Ross (1999) identified a number of benefits for "co-management" of natural resources. These included a reduction of resource-use conflicts, the creation of economic development opportunities, greater cooperation between government managers, industry and local harvesters and an increased willingness to explore management alternatives. Other benefits are a higher degree of organization, self-reliance, credibility, and cultural identity among local forest users. Educational and training opportunities will result from these ventures.

4.2.6 Identify Common Principles, Goals, Protocols and Codes of Ethics

To guide a community process and to share responsibility for the process, it is useful to identify common principles, central goals and a code of behavior and ethics. For a local resource management group, these could include principles related to the environment. For example, Alberta Environmental Protection (1999a) identified four basic principles along with a number of other principles related to it. The key principle was "The environment will be protected". This included a number of related principles or goals: 1) High-quality air, land and water will continue to be maintained; 2) Disturbed land will be returned to a state equivalent to that which existed before disturbance, with acceptable landform, soil, vegetation, habitat, wetlands and drainage; and 3) a diversity and abundance of wild plants, animals and fish will be maintained." These principles and goals are key to the central strategy required for the achievement of stated criteria and the reflection of the group's values (James Bay Advisory Committee on the Environment,

1998). A code of ethics can be developed to go along with these principles. This could involve particular protocols that must be honoured during the process, for example, saying a prayer at the beginning of each meeting.

4.2.7 Identification of Individual Issues, Concerns, Needs and their Priority

In order to integrate divergent systems, knowledge, uses, etc., the group must respond to the issues, concerns and needs of individual organizations or communities. The issues or concerns of a group or individual could identify further barriers to accepting other information or rights. Identification of issues is also a part of the mediation processes to the resolution of disputes. Individuals can describe an issue or situation as they perceive it. To further understand the issues or concerns, the needs of the individual or organization related to the issue must be identified. Identifying needs or interests will provide a clearer idea of what that particular organization is looking for to resolve their issue. It ensures that participants can understand each other by working on facts rather than assumptions, and needs rather than positions (Alberta Arbitration and Mediation Society, 1990).

Issues can be grouped to form a general theme, which can be addressed through proposed activities or goals (Alberta Environmental Protection, 1999b). These issues can then be prioritized by each organization, to provide the group with a focus to resolve conflicts and issues related to integration. Needs can also be grouped, summarized or categorized. For example, the Waswanipi Cree Model Forest (Lussier and Levesque, 1999) prepared a report that outlined the needs and expectations among participants of

the model forest and the needs related to management issues. These needs were then prioritized to meet the needs of the participants and to address pressing issues.

4.2.8 Identification of Values and Objectives

The cultural expression, uniqueness or identity of a group, community or organization is a reflection of common values, attitudes and objectives. Some of these are more flexible than others, or have changed over time as a community or organization has adjusted to the world around them (Rikoon et al, 1994). These values can be related to natural resources, social, economic or political values, making it difficult to integrate them or address the issues associated with them.

Past examples have shown that, by having a single focus on interests, positions and issues, without expressing the values, assumptions and emotions underlying the issues, will result in frustration on the part of the participants (Murray, 1998). Values may need to be revisited in order to assess and evaluate the actual and projected results of a management activity in relation to a community's evolving expectations (Gilmore, 1997). This process is important in order for a set of multiple resource values to replace a single resource value (Luckert, 1997).

4.2.9 Identify Criteria and Indicators

Research has shown that the establishment of criteria and indicators for sustainable land use management can address, define, monitor and guide the management of the land at local, regional, national and international levels. In Canada, the federal government implemented six national criteria and eighty-three indicators for evaluating forest

sustainability (Canadian Council of Forest Ministers, 1995). Later, the Ministers evaluated these criteria and indicators (C & I) and found that these C&I needed to be reviewed to improve the relevance and efficiency of the indicators for reporting on and assessing progress toward sustainable development objectives (Canadian Council of Forest Ministers, 2000). They suggested that fostering collaboration between the various data gatherers, information custodians and user groups is critical to improving the nation's ability to report on the sustainability of its natural resources.

At the local level, Natcher and Hickey (2000, 2002) and Hickey and Nelson (2005) found that the use of criteria and performance indicators can provide an accurate assessment of forest management as it affects local land use concerns. They suggest that the use of criteria and indicators can 1) establish a mechanism by which forest management can be monitored and assessed in a manner that considers Aboriginal/First Nation Peoples cultural and land use needs; 2) facilitate an assessment of existing and future forest management practices in traditional territories based upon prevailing cultural, social, ecological and economic criteria; 3) provide a local assessment of forest management and establish a basis for continuous improvement; 4) serve as a means of conflict resolution by articulating the diversity of values among the communities; 5) identify profit or profit sharing goals; 6) provide one or more parties secure access to fibre supplies; 7) identify formal training mechanisms and responsibilities; and 8) provide community benefits other than employment or revenue, such as cultural resource inventory or traditional use study.

4.2.10 Identify a Conflict Resolution Process

Within a collaborative or integrated process, especially where there is a diversity of cultural concerns, there is a potential for conflict. In order to resolve disputes within an integrative process, ethnographic studies have found that dispute resolution is not only about a process, but also about the local cultural values, social organization, hierarchy of social values, social relations and the roles and structures of power (Murray, 1998). Essential to conflict resolution within a group is the aspect of relationship or community building. Therefore, in order to resolve disputes through a community-based process, efforts must be made to focus on not just the desired outcomes, but attend to the larger social and relational needs of the communities. Murray (1998) outlined a transformative model with a holistic approach, one the author believed could transform individuals or groups from an adversarial and confrontational mode to a cooperative, collective and community-based one.

4.2.11 Definitions/Glossary of Terminology

To accept diverse cultural values and discuss a common vision, representatives of a local or community-based management system need to understand each other and develop a common language. A glossary would facilitate the participation and communication of representatives. All groups have their own language or terminology that they use for business or within a community. This is particularly true when discussing aboriginal knowledge, where there is a difference in languages (English and Aboriginal), but also the perceptions and meaning of each language. To address this issue, it would be beneficial for the group to develop a glossary of common terms. This would not only

define scientific and planning terms, but aboriginal terms, as well as translations from English to aboriginal languages.

4.2.12 Identify and Collect Required Information and Strategies

This includes an inventory of information required to address issues, needs and objectives. It can also identify management tools or strategies that are available to assist in addressing particular issues. This can include the specific legislation, policies and guidelines that apply to the region. The Gitxsan model for community forest management (Gitxsan First Nation, 2000) identified a series of required inventories. It included biological, ecological and cultural inventories. These inventories transect horizontal and vertical landscapes as well as cultural values. Alberta Environmental Protection (1999b) outlined an example of legislation and regulations required to address issues for the oil sands.

4.2.13 Identify Necessary Human and Financial Resources

In order for the group to accomplish its goals, it will need to have the appropriate human, technological and financial resources. Funding can come from a variety of sources, including governments, organizations and university programs. A budget must be developed by the group, estimating the funds required for the process. A financial management process and managers need to be identified. Too often financial responsibility has been devolved to one or two individuals, resulting in financial issues, including the misappropriation of funds or a burden to one individual. Good financial management can become a real source of power and confidence within the group

(Schaefer and Voors, 1986). Working with finances must be seen as an integral part of the process.

4.2.14 Process Evaluation

After the process of planning or management of the land uses is completed, the literature indicates that there should be a phase to formalize group closure. At that point, participants can share their evaluation of the process, such as expressing positive and constructive feelings about the group's accomplishments, and the needs and concerns that were not met by the process. With the closure, parties can return to their communities to share their new-found knowledge (Murray, 1998).

4.3 A Process Towards Aboriginal Participation in Resource Management and Decision Making and the Utilization of Traditional Knowledge

The previous examples of the utilization or applications of traditional knowledge from the literature and the AWN, appears to support the idea that both traditional and scientific systems can contribute to the understanding of our natural world, as well as address land use issues. Key elements found to be successful in the integration of more than one knowledge system have also been identified. The various methods used to utilize these two systems at the same time are in the process of being tried and tested, but the examples have shown there appears to be a process that can be developed to attain a management system that can provide aboriginal communities equal participation in resource management policies and management. Stevenson (2005) proposed a five step

process towards Aboriginal People's involvement in decision making, along with problems and benefits associated with these various approaches (Figure 2).

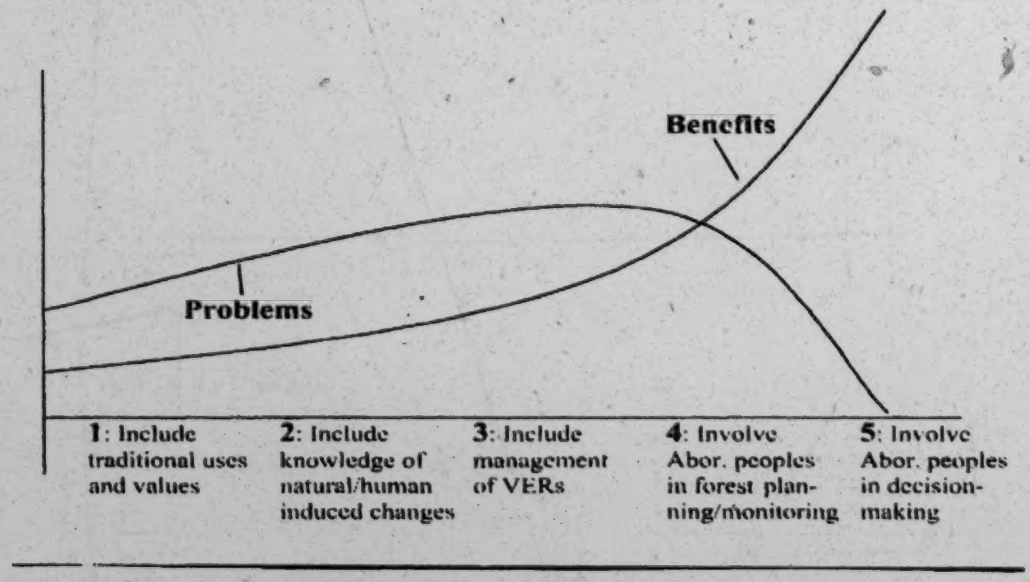
Benefits
Problems
1: Include traditional uses and values
2: Include knowledge of natural/human induced changes
3: Include management of VERs
4: Involve Abor. peoples in forest planning/monitoring
5: Involve Abor. peoples in decision-making

Figure 2: Predicted extent of problems and benefits associated with various approaches to incorporating Aboriginal knowledge into sustainable land management (note: VERs – valued ecosystem relationships) (from Stevenson, 2005)

However, based on the research for this thesis, a four stage process is proposed. All these stages are not required to reach equal participation of Aboriginal Peoples and their knowledge in decision making, but could be used to achieve that goal through a local or community management and planning process.

4.3.1 Stage 1 - Government or Industry Inform and Invite Communities to Identify Their Issues and Traditional Information

The first stage utilizing traditional knowledge and land use is similar to the definition of "Consultation" provided by Notzke (1994), whereby government and industry contact

Aboriginal/First Nation communities to obtain their views, issues and concerns regarding a particular project. They are also invited to give the location of traditional sites and suggested management techniques. These meetings are face to face, with the intention of listening to community leaders, but the government or industry does not have to necessarily act on community suggestions or concerns. TKLU is usually used to address some specific information gap, but excludes the holders from decision-making. There is also the possibility that communities can lose ownership and control over the use and application of their information (Stevenson, 1998). An example of this stage is the Regional Sustainable Development Strategy for the Athabasca Oil Sands Area created and funded by resource developers from the Oil Sands (Ross, 2003). This organization meets with aboriginal communities in the area to discuss their issues and concerns and to develop a process to control the cumulative impacts of development in the area. This arrangement can benefit both groups, but does not give the communities decision making powers regarding these developments.

4.3.2 Stage 2 - Cooperative Utilization of Traditional Knowledge and Land Use

At this stage, the level of discussion is more formal, with the intention of building long-term relationships and utilizing traditional knowledge and land use in some way. This stage also sets the terms and conditions under which the relationship will develop (Honda-McNeil, 2000). Government, industry or Aboriginal/First Nation communities may establish Policies and Processes of Consultation, or may sign Memoranda of Understanding (MOU) or Cooperative Management Agreements. For example, In 1993, the Grand Council of Treaty 8 First Nations and the provincial government entered

into a Memorandum of Understanding, with the intention to "establish a means of consulting with each other regarding new and existing policies, programs and services" (Alberta-Grand Council of Treaty 8 First Nations, 1993). A special committee was established to set up this process. To date the committee has not met or established this type of process, instead the government has entered into negotiations with individual aboriginal communities (Ross, 2003). The AWN has signed a number of agreements with governments and industry and Little Red River/Tallcree First Nations have signed a MOU with the province of Alberta. The most recent MOU was linked to two of Alberta's important environmental policies, namely the Alberta Forest Legacy (Alberta Environmental Protection,1998) and Alberta's Commitment to Sustainable Resource and Environmental Management (Alberta Environmental Protection 1999c). These policies call for public involvement in land use operations, including Aboriginal Peoples, to solve important issues. Based on this agreement the Little Red River/Tallcree First Nations are now able to address resource management issues with the provincial government. For example, the Little Red River/Tallcree First Nations identified an issue related to forest management operations and its impacts on wildlife species (Natcher and Hickey, 2002). With their knowledge of bison habitat, they were able to observe a loss of lowland bison habitat and subsequent displacement, caused by increased stream flow. This increase was because of inadequate buffers along the Caribou Mountain headwaters when the area was logged. As a result of their knowledge, specific management recommendations were made to limit timber harvesting along the Caribou Mountain slopes and to increase streamside buffers.

These agreements, policies and processes take time to develop and to implement, as

we have seen with the AWN's consultation process. They are a means by which two parties can meet, discuss and resolve their issues and concerns in an atmosphere of trust and mutual respect. Rather than discussing joint management or co-management, discussions are focused on appropriate consultation and protocols, capacity building and jurisdictional authority (Honda-McNeil, 2000). At these meetings, traditional knowledge and land uses can be actively sought by government or industry to be considered for the planning and management of natural resource use. However, because collaboration is often adversarial and lacking in trust, communities may or may not provide this information or provide it under certain conditions. This issue can become contentious, especially if the government or an organization has contributed a large amount of money to a traditional use study. Some agencies believe that there should be fiscal accounting and a return for their money, similar to contracts with a research consultant (Weinstein, 1998). And if aboriginal communities were consultants to industry this may be true, but this not the case with Aboriginal Peoples. The law require government and industry to consult with them regarding the impingement of their rights. This issue may be further addressed through an agreement, an approach the AWN took during their study. However, this does not mean that all of their land use information was handed over to another organization, but issues were often worked out utilizing the information at the offices of the AWN, where the information was held. In other situations they were willing to provide some of their data to an organization in a limited or confidential format that still required consultation regarding the impact to each of their land use sites.

Natcher and Hickey (2002) point out that while some level of community involvement in resource management is generally attained during these initial stages of

program development, it is rarely sustained. Also, community representatives may be involved in resource management decisions, but the final approval or decision comes from government or industry. Aboriginal/First Nation People may be involved in decision making with government or industry in some capacity, as liaison employees, research assistants or guides. Hickey and Nelson (2005) found the best way to protect treaty and Aboriginal rights is to develop partnerships with corporations and with government. However, they found that government involvement can sometimes slow things down, as they have a greater fear of setting precedents than corporations. They also found that each partnership must be customized to a specific community and individuals. In addition, these partnerships often need to be subsidized to provide capacity to communities to participate in the process adequately.

4.3.3 Stage 3 – The Provincial Government Establishes a Policy on Traditional Knowledge and Land Use

Since it has been established that governments have a fiduciary relationship with Aboriginal Peoples, they have an obligation to ensure the interests of Aboriginal Peoples are not undermined. At this stage, a provincial government, having jurisdiction over most natural resources, passes legislation, establishing a policy where industry and government must give traditional knowledge and land use full consideration when planning and managing natural resource developments that may impact traditional sites and treaty rights. As part of this policy, the government will attempt to identify all traditional territories or areas of Aboriginal/First Nation communities, in order to consult

with communities that may be impacted by natural resource activities, such as timber harvesting operations.

Once a policy is in place, if necessary, communities, government and industry must find ways to incorporate cultural values, knowledge and sites into a management system that was not designed to process such values and activities (Lewis and Sheppard, 2002). This needs to include not only knowledge and values, but a mutually acceptable model for collecting and holding this type of information in a way that increases cross-cultural communication and trust between First Nations and resource managers. For example, some communities may want to hold the information themselves, while others do not have the capacity.

There also needs to be a method to monitor the implementation of the policy. Other organizations have used a set of criteria and indicators by which to measure progress on this issue (Hickey and Nelson, 2005). For example the extent of consultation with Aboriginals in land management, planning and policies could be an indicator. Another relevant indicator is what area of Crown land has been covered with traditional land use studies. Hickey and Nelson (2005) further indicated that provinces could incorporate conditions into forest harvesting tenures to reflect their policy.

In order to assist Aboriginal/First Nations communities to participate in this policy and subsequent documentation of their TKLU, provincial and federal governments could establish a fund. Documenting TKLU information is very expensive, and many Aboriginal/First Nation communities do not have access to the funds needed. Consequently, they are unable to gather and provide the information they need to participate in management activities and evaluate land use issues. There is also the issue

of what process or method a community should use to collect and compile the wide variety of knowledge from the individual members and families, so that the collective leadership can negotiate on behalf of its members and their knowledge and sites. If such an undertaking is initiated, issues of intellectual property rights, storage and access to information need to be addressed. Communities will need additional funding to manage and retrieve this information for government and industry and for their own community. This involves funding a position within the community for this purpose.

4.3.4 Stage 4 - Establishing a Local or Community Management Process

If we are to have a new management system where aboriginal communities have decision making authority, there needs to be a paradigm shift, from a process of extraction to a collaborative and sustainable local or community-based resource management system (Bombay, 1996). At this level of land use, regional and local land managers and representatives are attuned to operational issues and can offer a local and pragmatic view, including aboriginal involvement (Honda-McNeil, 2000). This would also involve the recognition of aboriginal boundaries, values and management systems. However, this stage of management would require changing current cooperative management approaches and systems to include Aboriginal/First Nations peoples and their knowledge, wisdom and values into a co-management process that manages for sustainable use and human activities (Stevenson, 1999). Also, a process of this nature must occur in a way that empowers all parties, by providing for equal sharing of power, responsibilities and decision making. A local approach would benefit regional and local land managers by providing a strategic decision-making process that allows corporations to be profitable

while meeting the needs of other users. This type of process will put management responsibility on the shoulders of a group of users, rather than one user or manager.

Local or community land management can occur three ways. The first type of process is for aboriginal communities to participate in an adaptive form of an existing framework of land use management, or integrated resource management. In this scenario, the communities bring their own information to the table, as do the other parties. Although the dominant language for this arrangement will be English or French, it is the Aboriginal People who choose when and what information to share, as well as the appropriate context. In this type of system, all parties strive to understand each others' systems and values. Through understanding and mutual respect, parties can eventually adopt new concepts and terms that facilitate each others' perspectives and interpretations in resolving issues (Stevenson, 1996). Further, this type of process incorporates and uses traditional and non-traditional knowledge for decision making, without a loss of control over the information.

Another similar process was proposed by Stevenson (2005). This is the Two Row Wampum Approach to resource management. The "Two Row Wampum" was a belt given by First Nations peoples to Europeans, and is based on a nation-to-nation relationship that respects the autonomy, authority and jurisdiction of each nation. The two (dark) rows (on a white background) symbolize the two paths or two vessels travelling down the same river of life together, neither trying to steer the other's boat (Figure 3). He indicates that, owing to the differences between traditional knowledge and resource

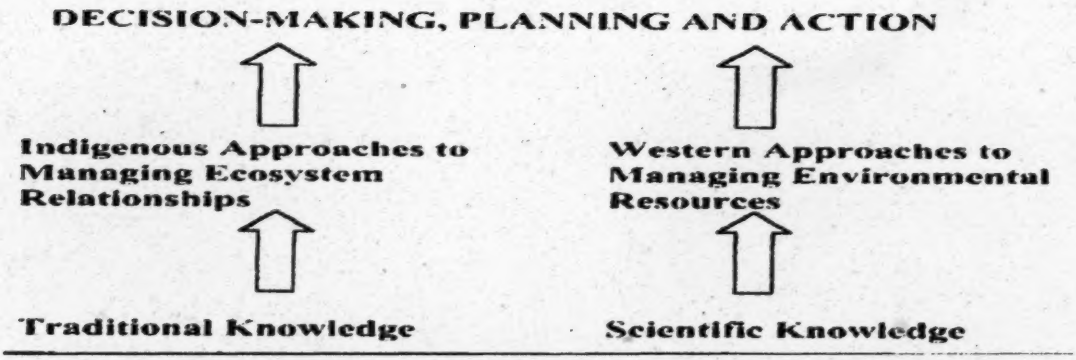
DECISION-MAKING, PLANNING AND ACTION
Indigenous Approaches to Managing Ecosystem Relationships
Western Approaches to Managing Environmental Resources
Traditional Knowledge
Scientific Knowledge

Figure 3: The Two Row Wampum Approach - an alternative approach to incorporating Aboriginal Peoples and their traditional knowledge in sustainable land management (From Stevenson 2005)

management or western science, traditional knowledge may have little to offer conventional scientific knowledge, but it could contribute to the understanding and developing of sustainable relationships with the natural world. Further, he indicates that effective contributions will not be realized until environmental policy makers and resource managers consider them equal to scientific knowledge. In the proposed Two Row Wampum model approach, traditional knowledge is not merged with scientific knowledge or used to supplement it, but complements it by contributing knowledge and wisdom relevant to managing valued ecosystem *relationships,* while the scientific knowledge and information contribute to relevant management of resources or valued ecosystem *components*. But both are required to achieve sustainable land management.

The third type of community-based management system is one of joint development of a new management system that incorporates the vision, values, principles and objectives of all parties involved. It is not only one of traditional or indigenous knowledge combined with industrial or scientific knowledge, but also one of integrating multiple cultural forms. It would also be a system where the word "management" has a

different meaning, different foundation, and a different process in terms of who is involved (Armstrong, 2002). This is not an easy task, but it is not impossible. Each culture is impacting the other, but a cooperative approach offers a model that affords communities and other representatives an opportunity to shape their own future together into a new paradigm of land use planning and management. This type of model provides a balanced respect of each other's culture, their knowledge and values, while sharing appropriate knowledge and information required for the an integrated approach to land use management.

However, to reach this level of collaboration and management and a level of community or land use planning and management, the elements, principles and processes of other successful management systems need to be identified. Many of these have been identified in the previous section. In addition this type of community-based management system is holistic in its approaches to the collection of information, while being flexible, open and understanding of all forms of knowledge and interpretations of data It is an adaptive decision making process initiated and directed by local institutions or communities (Furgal, 1996).

5.0 CONCLUSIONS

Western economic perceptions, definitions, processes and development have been a major force in incorporating non-western cultures. Because this has occurred for at least two hundred years, the dominant culture in Canada has assumed that aboriginal communities share their perceptual economic system (Wills, 1984). Although Aboriginal People have adopted many of the same products and participate in the

occupations of the dominant culture, they still hold a different set of perceptions on economic development, community and the environment. In other words, they have engaged in a process of syncretism – the adoption of certain practices and values in order to protect and promote the most basic of their core values (Hickey, Pers. Comm. 2005). The documentation of Aboriginal traditional knowledge, land use and values has further shown that Aboriginal People, their identity and their cultures, have been able to survive while adapting to the new paradigm established by the dominant society and while adapting elements of the new paradigm to their own cultures.

During the last century, when governments or industry were dealing with natural resource developments, aboriginal rights were often ignored and the identification and protection of traditional areas and sites a low priority for government planners and developers. Aboriginal People were seen as merely one among many stakeholders. Governments and industry imposed their Western scientific and economic perceptions of the environment or notion of place onto the public, including Aboriginal Peoples. The land, plants and wildlife were viewed as resources, with associated economic values. Those that did not have an economic or "mainstream" social value were often considered unimportant to the planning and development processes, even though they had value to other people.

Despite these attitudes, the participation of aboriginal communities and utilization of their traditional knowledge in land use management has been evolving. In the past, communities found it in their best interests to withhold traditional knowledge and locations of important specific sites in order to protect them. However, with continuing and cumulative effects of land use developments, this process is no longer working, as

sites and areas are being lost. A new approach needs to be found. Aboriginal communities and organizations are now trying to find the best way to work together and use traditional knowledge in a way that will benefit all concerned, and without the loss of aboriginal rights, sites and knowledge. In an attempt to help answer this question, this thesis researched and examined some of the various applications and uses of traditional knowledge and land use information and studies by aboriginal communities, governments and corporations, as well as a strategy for using or incorporating TKLU.

The research revealed that through the process of collecting traditional knowledge and land use information, one community - the Aseniwuche Winewak Nation of Canada - was able to utilize or apply this information in nineteen different areas. They also found that through the process of conducting their study, community members, including the Elders, learned new skills or adapted their own skills to Western processes, including planning groups and environmental impact assessments.

Further research indicates that aboriginal knowledge and land use are now being actively studied, discussed and utilized by governments, universities, non-governmental organizations and Aboriginal People. Canada's Aboriginal Peoples are now seeing a reversal in policies regarding their involvement in land use activities and the acceptance, utilization and applications of their own values and knowledge. This reversal is being driven by a number of factors, including recent court cases in British Columbia acknowledging the priority land rights and knowledge of Aboriginal Peoples, the duty of the Crown to consult with Aboriginal Peoples and a lack of a policy by the federal and provincial governments regarding traditional use. In the case of *Delgamuukw* (1997), Chief Justice Lamer called for reconciliation with Aboriginal People by the federal

government through "good faith negotiations". Lamer went on to decree that the Crown is under a moral, if not a legal, duty to enter into and conduct those negotiations and the reconciliation of the pre-existence of aboriginal societies with the sovereignty of the Crown. This case was further supported by the Supreme Court of Canada in the *Haida* case.

Following these court cases, governments indicated that they would prefer to work with aboriginal communities to develop policy and guidelines, rather than being forced to it by legislation or the courts. The federal government and some provinces have shown they are willing to conduct government-to-government relationships and to adapt or develop new systems and processes with Aboriginal/First Nations peoples. This situation has created new opportunities for the re-assessment of development and management alternatives which are more environmentally, culturally and economically sustainable, and to consider alternative arrangements to share power and responsibility for resource use (Berkes, 1994). These initiatives will also provide government with an opportunity to expand their cultural view of the environment and natural resources by including the diverse and variable cultural perceptions of aboriginal communities. It may even include examining their classifications systems, as each classification system is associated with the elements and social categories of its culture. A review of both systems of knowledge indicates they both are legitimate ways of knowing and are based on dynamic experiences of each particular culture (Letzman, 2002). This does not mean that the planning of natural resources development should be done according to the protocols and perceptions of Aboriginal People, but by a new, or more expanded and inclusive system of planning where the two systems can incorporate, support or complement one another.

A new system of management would allow Aboriginal People to play a more meaningful role as decision-makers and require local beliefs, values and practices to be accepted as a valid basis for action (Nadasdy, 1999, 2003). To do this it is necessary to identify the differences and similarities of each culture and associated processes, transcending and seeking a common culture, system or process that acknowledges the rights of each culture without one dominating the other. To reach this stage of management, or co-management, a paradigm shift is required to a new system of management. The current thinking in this area suggests that the best way to do this is through a local or community-based resource management system, where an interdisciplinary group of people, with decision making powers, representing different interests and uses of the land, work together to create a new paradigm of sustainable and integrated resource management. This system not only requires participants to acknowledge and include local knowledge and concepts, but utilizes recognized and acceptable forms of decision-making processes, along with the power or jurisdiction to implement decisions. This type of system recognizes that communities often know how to manage the local resources better than central authorities. It is also a shift from an ecologically-based model of management to a socially-based ecosystem management philosophy that reconciles competing economic, ecological and social values as society continues to evolve (Gilmore, 1997). Further, a system of this nature is more flexible and can allow for changing social values. However, values do not appear to be the only elements to consider when integrating several cultures, their knowledge, uses and needs. A true integrated land use approach will require time to build relationships, trust, cooperation and flexibility, while considering all

the biological, environmental, cultural, traditional, social, economic and political factors to attain sustainable resource management.

Studies have shown that western technology can assist with this approach. Most governments and organizations are now utilizing GIS to assist with these processes. A GIS system with the proper information could potentially identify areas of conflict, as well as areas of compatibility. It can also be used to design buffers around important sites. However, GIS systems are not adequate tools to predict or identify the exact location of spiritual and cultural sites or any associated information or determine impingement of aboriginal rights. These sites are not always self-evident because they are not part of the built environment nor easily captured by the spatial information commonly used for GIS analysis. And the technicians are not experienced or trained to identify this type of information. Therefore it is imperative that spatial patterns are supported by empirical data from the best source of that information – the local people. The AWN and other groups have utilized GIS and GPS systems for their studies and the resulting applications of that information. They use it to store their information and maps, as well as for their Map Review Process. Other aboriginal organizations such as Manitoba Keewatinowl Okimakanak First Nations have built an intuitive, land research, management and analysis computer system that could be used by First Nations and other groups to perform land research activities, mapping and land management functions.

However, there is a cost to utilizing technology and to developing a common approach. Funding is a key issue that needs to be addressed before all parties can move forward. Federal and provincial governments and corporations need to discuss means of funding with Aboriginal/First Nation communities, as this process is not the sole

responsibility of the communities. A program of this nature needs to be sustainable, to support continued research and development of new systems or processes.

The use and application of aboriginal knowledge, innovations and practices would result in the equitable sharing of benefits by all. It would further result in the empowerment of aboriginal and local communities, protection of traditional lifestyle and land use and biological diversity (Higgens, 1998). Aboriginal/First Nation involvement in an integrated management approach is essential to the reconciliation of Aboriginal occupancy and rights to the land with industrial activities of any kind.

While future relationships between First Nations and governments will continue to be challenged by problems of cross-cultural perceptions and legal issues, there appear to be incentives and processes by which the two cultures can reconcile their differences. The examples of the utilization and applications of traditional knowledge identified numerous barriers, but they also identified successful elements that could be employed to move forward in this area. Significant ones include a common vision or goal, mutual respect for each other's concerns and issues and a set of mutually-acceptable principles and values. In this process, all parties would embrace a holistic, flexible planning system, and an adaptive decision making process with accompanying human and financial resources. In addition, research indicates that there are stages or levels of integration that governments, corporations and communities could attain, at their own pace, in their united efforts to attain a new management system that recognizes their own cultures, knowledge and systems.

There are many organizations and individuals who are committed to establishing equal roles and contributions of Aboriginal/First Nations Peoples to sustainable land

management. There is an advantage in involving these individuals, as their allegiance is to the process of reconciliation and a holistic approach to land management, rather than to their own interests.

Over the last two hundred years, aboriginal cultures have changed and adapted in response to the pressures of technology, policies, and the dominant culture, and they continue to do so. Mainstream Canadian culture has also changed and adapted in response to the other cultures and technology. However, it now has an opportunity to expand its own boundaries and perceptions to include a more holistic view of our environment and country, one that many people and organizations seem willing to embrace and other who are more cautious.

The issue for anthropologists appears to be what form of involvement should they take in this change? Although anthropologists have been instrumental in documenting the history, traditional knowledge and land use of Aboriginal Peoples, they do not appear to have been very effective in communicating their general findings to an informed public, but to smaller audiences. Anthropologists also appear to lack a clear position on the rights of those people they are studying. However, anthropology's holistic viewpoint and ability to identify cultural features, has the potential to reveal useful insights that can assist groups to resolve cross-cultural issues related to land use developments (Hedican, 1995). Clearly, there are a number of different areas where anthropologists have the opportunity to contribute to this field of applied research, as well as bridge the gap between academics, the public and Aboriginal Peoples.

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7.0 APPENDIX

Appendix 1-Examples of Some Applications and Utilization of Traditional Knowledge and Land Use Activities in Canada

Activity Area	Federal	Provincial/Territorial	Regional/Local/Community
Acts and Legal Precedence	Supreme Court of Canada - Delgamuukw (1997) recognizes Aboriginal perspective, laws, oral history and traditional knowledge governing land use and Aboriginal rights (Brubacher and McGregor, 1998) Canadian Environmental Assessment Act - cultural or heritage resources are one of the many components considered (Sub-committee of the Intergovernmental Working Group on Mineral Industry, 1997)	The Yukon Archaeological Sites Regulation and Yukon Historic Resources Act gives legal protection to historic, archaeological, sites and to traditional history data (Sub-committee of the Inter-governmental Working Group on the Mineral Industry, 1997) Supreme Court of Canada-Haida Court Case (West Coast Environmental Law, 2005), indicated that the federal and provincial governments are responsible for the duty to consult and First Nations are obligated to participate in consultation. Ontario Supreme Court-Jones-Nadjiwan Decision- recognized territorial claims of the First Nation to fisheries and their involvement in management (Kahar,1995)	

Activity Area	National/Federal	Provincial/Territorial	Regional/Local/Community
Policies, Standards, Principles, Guidelines, Criteria, Values, Consultation Protocols	Canada's endorsement of Agenda 21 of the Bruntland Report supporting the role of indigenous people (Brubacher and McGregor, 1998) Canada's ratification of the Convention on Biological Diversity supporting increased role for holders of traditional knowledge (Brubacher and McGregor, 1998) Canada's National Forest Strategy and First Nations- recognizing the value of traditional ecological knowledge (Brubacher and McGregor, 1998) Canadian Council for Forest Minister and the Canadian Standards Association – Developed criteria and indicators for sustainable forest management and roles of Aboriginal peoples (Brubacher and McGregor, 1998)	Alberta Aboriginal Policy Framework – The government of Alberta outlined principles and commitments regarding Aboriginal consultation (Government of Alberta,2000) British Columbia – Protection of Aboriginal Rights Policy -to ensure forest service staff do not infringe on Aboriginal rights (Brubacher and McGregor, 1998) Saskatchewan – Forest Management Policy encouraging aboriginal involvement in the forest industry (Brubacher and McGregor, 1998) Saskatchewan – Aboriginal Affairs Policy Framework acknowledges aboriginal people's interest in the forests (Brubacher and McGregor, 1998)	The Nuu-chah-nulth Nations of Clayoquot Sound and the Scientific Panel for Sustainable Forest Practices (Bombay, 1996) Principles of Indigenous Resource Management (Wolfe et al, 1992) Aseniwuche Winewak Nation of Canada Consultation Protocol (2002)

	Forest Stewardship Council requires aboriginal values be considered during forest management planning National Aboriginal Forestry Association – Principles for guiding forest land management by aboriginal peoples(Bombay, 1996). Guidelines for Aboriginal People and Corporations in their use of Traditional Knowledge in Mining – Subcommittee of the Intergovernmental Working Group on the Mineral Industry (1997)	Saskatchewan – Public Involvement Program encourages aboriginal involvement in decision making processes (Brubacher and McGregor, 1998) Yukon Conservation Strategy – For Our Common future – to encourage greater awareness and understanding and integration of aboriginal knowledge into management decisions (Yukon Government, 1988) Nunavut Impact Review Board – specified that indigenous knowledge be considered equal to scientific knowledge when evaluating developments (Grenier 1998)	

Activity Area	Federal	Provincial/Territorial	Regional/Local/Community
Environmental Impact Assessments	The Berger Inquiry regarding the impact of the proposed Alaskan pipeline considered the views and knowledge of the Inuit, Dene and Metis regarding a proposed pipeline (Berger, 1988).	British Columbia, the Huu-ay-aht First Nation and Tree Farm License holder- negotiated improved consultation process to mitigate logging impacts (Brubacher and McGregor, 1998) The Union of British Columbia Indian Chiefs initiated a traditional use study to research the impact of the proposed pipeline would have on the economic and social lives of the native people in northeastern British Columbia. (Brody, 1981)	The James Bay Cree at Fort George initiated a study to evaluate the impact of the proposed James Bay hydroelectric project on their land use and subsistence harvesting (Weinstein, 1976). The MKO First Nations negotiated an agreement-in-principle to have MKO carry out the land use mapping related to the Environmental Assessment process and the impact of land use activities on the First Nations (Weinstein,1976)

Activity Area	National/Federal	Provincial/Territorial	Regional/Local/Community
Agreements	Algonquins of Barrier Lake, Federal Government and Province of Quebec Trilateral Agreement (Bombay, 1996)	Algonquins of Barrier Lake, Federal Government and Province of Quebec Trilateral Agreement (Bombay,1966) Gitxsan First Nation and British Columbia Ministry of Forests – Protection of Aboriginal Rights Policy (Bombay, 1996) Peter Ballantyne Cree Nation and the Saskatchewan Government - Forest Management Agreement (Bombay, 1996) Little Red River Cree Nation Memoranda of Understanding with local forest companies and the provincial government (Hickey and Nelson, 2005)	Athabasca Native Development Corporation (ANDC) - a Parallel Aboriginal Process with Alberta-pacific Forest Industries (Bombay, 1996)

Activity Area	National/Federal	Provincial/Territorial	Regional/Local/Community
Planning, Management, Programs and Related Activities	The Canadian Model Forest Network is committed to research sustainable forest management practices. They established the Waswanipi Aboriginal Model Forest established to examine culturally appropriate ways to incorporate traditional knowledge into forest management (Natural Resources Canada, 1997)	Cree of Eeyou Astchee and the Province of Quebec - Planning to incorporate traditional information into forest management plans (Bombay 1996) Ontario Forest Management Planning Manual section on Native Consultation and Values Mapping-used to develop a "Report on the Protection of Identified Native Values (Brubacher and McGregor 1998) Beverly-Kaminuriak Caribou Management Board – responsible for coordinating management of caribou herds in the interest of traditional users (Freeman and Carbyn (Ed.) 1988) Assembly of First Nations - conducted an environmental health study for the Great Lakes Drainage Basin using GIS and various government data bases (Bird, 1995)	First Nation Forestry Association and First Nations explored methods to germinate and manage black ash (Brubacher and McGregor 1998) Ecolink Forestry Services, a joint venture between Alkali Lake Band and Lignum Woods Ltd. – logging and silviculture practices (Canadian Forest Service, First Nations Forestry Program, www.fnfp.gc.ca) Haida Fisheries Program-implemented fisheries guardian strategy and incorporated traditional knowledge into management of the fisheries (Notzke, 1994)

Activity Area	National/Federal	Provincial/Territorial	Regional/Local/Community
Institutions, Organizations and Research		Sustainable Forest Management Network (SFMN) Research projects, partnerships, workshops, conferences and publications related to the incorporation of traditional knowledge and use on forested lands (Stevenson, 1998) Heritage Resources Centre, University of Waterloo – involvement of aboriginal people in inventory of important cultural, historic and archaeological sites (Smith, et al 1986)	Gwich'in Renewable Resources Board – addresses research needs of the community related to forest use (Stevenson 1998) Peter Ballantyne Cree Nation established a Peter Ballantyne Forestry Committee, Local Advisory Committees and a Regional Advisory Board within their Forest Management Area to identify traditional use and issues (Bombay 1996)

Activity Area	National/Federal	Provincial/Territorial	Regional/Local/Community
Traditional Uses			Selected Socio-Economic Characteristics of Aboriginal Families Living Off-Reserve: A Case Study. Collection of non-timber products for food, medicine, spiritual practices, crafts, hunting, trapping, fishing and forestry (Kulshreshtha and Agyirey-kwakye 1995) Eel Ground First Nation, New Brunswick Elders and Forest Managers inventoried and protected medicinal and other important plants from impact (Brubacher and McGregor 1998)